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CALIENTE

WILDERNESS

TECHNICAL

REPORT

US DEPARTMENT OF THE INTERIOR

Bureau of Land Management

Las Vegas District Office Las Vegas, Nevada

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September 1984

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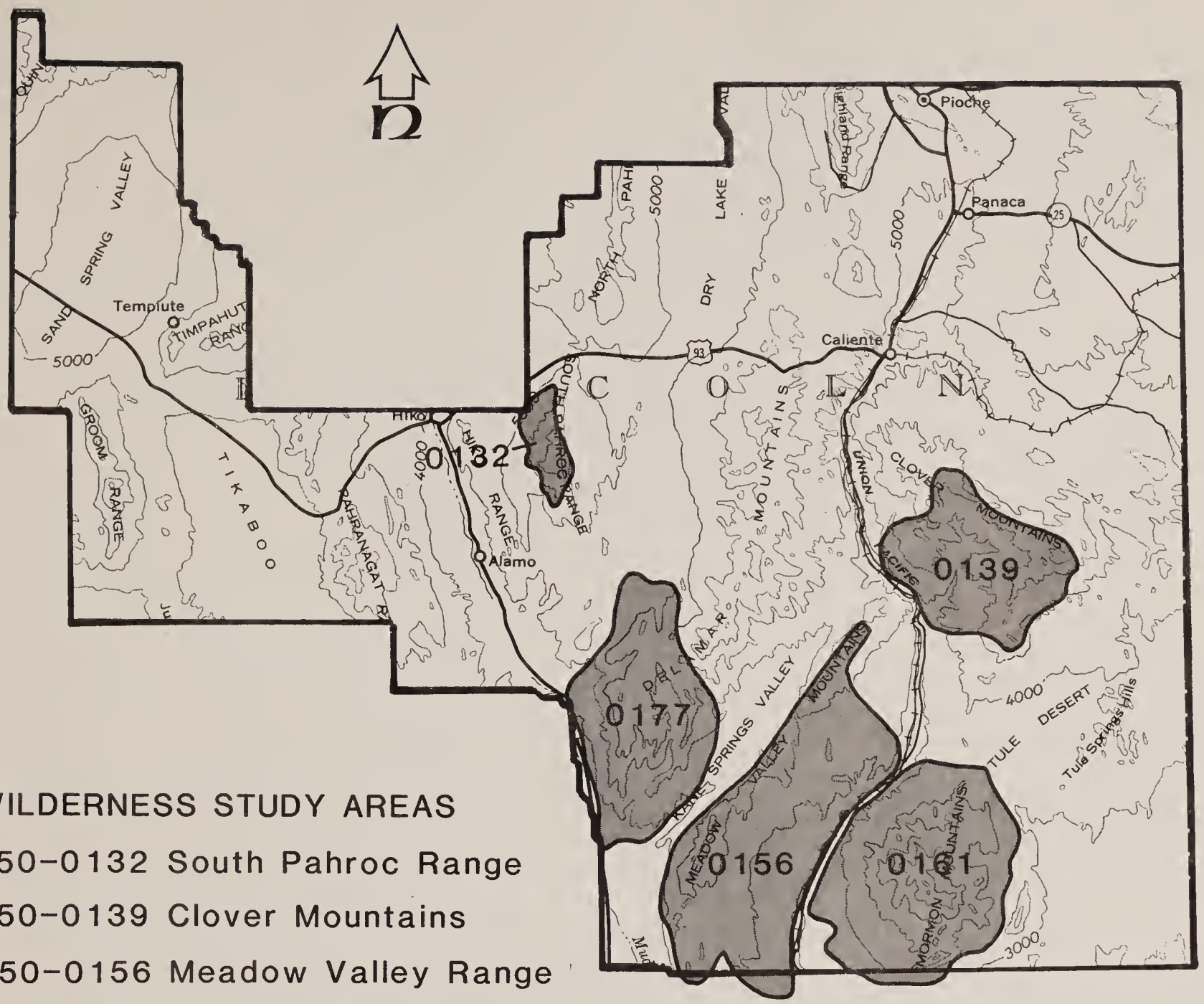


WILDERNESS STUDY AREAS

050-0132 South Pahroc Range

050-0139 Clover Mountains

050-0156 Meadow Valley Range

050-0161 Mormon Mountains

050-0177 Delamar Mountains

CALIENTE RESOURCE AREA
Location Map

WILDERNESS STUDY AREAS

PREFACE

PREFACE

In considering the criteria and quality standards listed in the Wilderness Study Policy, several points are applicable to all wilderness study areas; consequently, to avoid repetition, these are addressed in the Preface.

I. Wilderness Characteristics

Mandatory Characteristics

Several recreational opportunities are present in all wilderness study areas. They are:

1. Hiking/Backpacking
2. Sightseeing
3. Nature Study/Bird Watching
4. Photography
5. Camping
6. Picnicking
7. Rockhounding
8. Hunting
9. Trapping
10. Climbing/Scrambling
11. Horseback Riding

No specific mention is made of these in the individual study area discussions unless they are of better than average quality, or unless they contribute to an outstanding diversity of opportunity.

Multiple Resource Benefits

In all study areas, as a consequence of preserving the areas in their natural condition, several other resource benefits would result from wilderness disignation. They are:

1. Air Quality - All designated wilderness will maintain Class 2 Air Quality Classification.

2. Watershed and Water Quality - Some soil and vegetation disturbing activities will be prohibited. Development of water sources will be limited by the Wilderness Management Policy, as would development (other than mining) that could impact the watershed.

3. Wildlife -

(a) A controlled burn policy for a designated wilderness area would allow a natural historically, occurring phenomenon to take place which would enhance wildlife habitat by providing a diversity of vegetation successional stages.

(b) Maintaining areas in their natural state results in preservation of habitat for most species. Seedings creating non-native or non-naturalized habitat will be disallowed. Preserving the natural environment will also result in keeping disturbances of sight and sound to a minimum. This will particularly benefit reclusive species.

(c) Adverse biological consequences that are often caused by the introduction and use of presticides, herbicides, and other pollutants will normally be prohibited.

(d) Due to the scarcity of riparian areas in southeastern Nevada, and because of the abundance of wildlife and vegetation they support these areas are significant. If riparian degradation is prevented, crucial nesting habitat will be preserved resulting in stabilization of populations of species such as saw-whet owls, Cooper's hawk, goshawk, great horned owl and screech owl. Riparian protection will also allow muskrat, ringtail, and weasel populations to stabilize or increase slightly.

In general, non-game species will benefit from a continued lack of harrassment and a maintenance of more natural habitat conditions.

4. Recreation and Visual Resources -

(a) Designation would help protect the scenic quality of the areas because of the restrictive Wilderness Management Policy.

(b) Designation would give legislative protection for important sites, such as caves, ponderosa pine and white fir forest, and raptor nesting areas.

(c) Designation would help maintain areas in a natural roadless condition, thereby preserving opportunities for backcountry recreation.

(d) Opportunities to bag trophy bighorn sheep and mule deer bucks would be preserved.

5. Cultural resources - Limiting motorized access reduces opportunities for looting and vandalism and wilderness designation thus offers greater protection for both known and undiscovered archeological and historical resources.

6. Forestry - As the Wilderness Management Policy prohibits the cutting of trees (except for special circumstances), uncommon species such as white fir and ponderosa pine will be protected by designation.

7. Threatened and Endangered Species - No sensitive plant species have been located in any of the study areas, but based upon their identification in adjacent or nearby ranges, such plants almost certainly do exist in the areas. The Meadow Valley Range WSA has two state protected plants in its vicinity and the "sensitive" desert tortoise is found in three units. Therefore, designation will protect these plants from development and resource production activities.

Diversity

Using geographic distribution as a criterion, more wilderness should be designated in Nevada as there is only one designated wilderness area (Jarbridge in northern Nevada) within the state.

When considering diversity in the National Wilderness Preservation System, three criteria come into play: Geographic distribution, a day's driving time (5 hours) of a standard metropolitan statistical area (SMSA), and representation of ecosystems.

Las Vegas, the only SMSA within 300 miles, easily puts all the Caliente Resource Area wilderness study areas within 5 hours driving time of a population center of 100,000 or more.

All five WSAs are partially or completely in the Intermountain Sagebrush Province. Ecosystems represented in this ecoregion include Great Basin Sagebrush and Pinyon-juniper woodland. One WSA is partially in the American Desert Province and has an Ecosystem Classification of Creosote Bush.

In general, these systems are underrepresented in the National Wilderness Preservation System and the inclusion or designation of any Caliente Wilderness Study areas as wilderness will contribute to the diversity of ecosystems in the National Wilderness Preservation System.

II. Manageability

The primary intent of this criterion is to ensure that an area recommended as suitable for wilderness designation can be managed so that the entire area designated will remain as wilderness in the long term. Manageability factors are unique to each area and discussed by WSA.

III. Energy and Mineral Resources

All of the WSAs have some degree of mineral potential. But none of the WSAs contain significant known deposits with high potential. All the WSAs have large areas with unfavorable or unknown potential for minerals and significant areas with undeterminable potential due to insufficient data or a lack of data with better than low confidence. Strategic or critical mineral materials and energy-related mineral resources are not known in significant amounts in any WSA.

Most of the areas within all WSAs have

unfavorable or unknown potential for metallic minerals. One WSA is thought to have speculative metallic mineral potential due to two adjacent, inactive mining districts. Gold silver, lead, zinc, copper, cadmium, antimony, molybdenum, manganese, mercury and possible tungsten have been produced near two of the WSAs. The old Whitmore gold prospect at the end of a cherrystemmed road in the Mormon Mountains WSA shows past production of small amounts of copper-containing minerals of strategic -related significance--the small area in the WSA around the prospect may have some potential in the future.

Nonmetallic minerals occur in all WSAs and primarily consists of limestone, silica, perlite, gypsum, sand and gravel. Common clay and building-stone materials are present in the WSAs and fluorspar was produced near one WSA. Two WSAs contain speculative alunite mineral potential.

Four WSAs have 13,551 acres covered with mining claims within their boundaries. A fifth WSA has no mining claims. Pre-FLPMA, or grandfathered, claims affect two WSAs and involve 201.3 acres. Post-FLPMA mining claims cover 13,350 acres within three WSAs. One WSA has 7.1 percent of its acreage affected by mining claims whereas the other three range from 1/2 of 1 percent to 2 percent. The WSA with no mining claims has three material site rights-of-way that may affect the WSA (approximately 380 acres within the WSA).

The acreage in four WSAs is completely leased for oil and gas. One WSA has a lease that expired after an exploratory drillhole was plugged and abandoned with no discovery but has since been leased again. The fifth WSA has portions of five sections leased along its western boundary. Several of the WSAs are in a regional belt of ancient thrust faults, an area containing the so-called Nevada extension of the Wyoming overthrust, that is thought to be a prospective frontier for oil and gas exploration. No oil or gas has been discovered in or near the WSAs. A prospective favorability for discovery exists, but the potential is highly speculative. All of the WSAs have unfavorable potential for high-temperature geothermal resources.

A breakdown of mineral-related relationships is shown in Table 1. The mineral classification system is defined and characterized in Appendix A. The mineral potential of each WSA is described briefly in the respective sections by WSA.

The data base used the BLM Caliente Planning unit Mineral Resource Inventory and the Geology-Energy-Minerals (GEM) Technical Reports (Great Basin Joint Ventures, 1983) described later. The data base was supplemented and compared with other recently acquired information: case-files; courthouse record data; personal communication with industry, individuals and other agencies; other mineral investigations (HDR Sciences, 1980, and Fugro National, 1981); and limited field verification. A geochemical survey (GEM Phase II) was conducted in the summer of 1983 by the U.S. Geological Survey and the data is to be released in 1984. For any of the areas that the Director recommends as suitable for wilderness designation, a mineral potential survey (GEM Phase III) will be conducted by the U.S. Geological Survey/Bureau of Mines in order to supplement with sufficient, competent data where the existing confidence of known data is unqualified or lacking.

IV. Impacts on Other Resources

A. Recreation - Recreation will experience some negative impacts in all areas that are designated. Wilderness designation will mean vehicle dependent individuals, such as the elderly, handicapped and those relying upon vehicles for recreational pursuits will be prevented from using vehicle ways or traveling off road in the five WSAs.

Designation may lead to a slight increase in recreation use which may

result in crowding at access points and at destination points such as springs, streams, caves, mountain tops, and ridge lines.

B. Grazing - If the range operator is required to use horses for work activities that had previously been performed by motorized vehicle, grazing and ranching interests may experience some slight adverse impacts from wilderness designations.

C. Forestry - The range of management possibilities for the forestry resource will be narrower in three WSAs by the prohibition of green firewood cutting, Christmas tree cutting, and commercial pine nut gathering.

D. Cultural Resources - Lack of vehicular access creates difficulty for personnel studying sites. Stabilization or excavation will not normally be permitted, but can be permitted on a case-by-case basis where overall wilderness values won't be degraded.

E. Wildlife - projects and habitat manipulation will have to meet standards to maintain wilderness values.

F. Other - No adverse impacts will occur to wild horses, air quality or water quality.

V. Impacts of Nondesignatin on Wilderness Values

Over the short term, nondesignation of the five WSAs would cause little adverse impact to wilderness values. However, significant adverse impacts would cause a loss of wilderness values in the long term. Wilderness values, particularly naturalness and solitude, would be lost to energy-mineral exploration and development, casual road construction, increased ORV use, possible communication site development, material site use, range and wildlife project construction, powerline construction, and increased Air Force activity.

CLOVER MOUNTAINS (GRAPEVINE) NV-050-0139

CLOVER MOUNTAINS (GRAPEVINE SPRING) NV-050-0139

The Clover Mountains WSA contains the southern extension of the Clover Mountains located in eastern Lincoln County, Nevada, approximately two hours or 105 miles by road, northeast of Las Vegas, Nevada. This WSA contains 84,935 acres of public land within the Caliente Planning Unit. There are no private inholdings within the WSA.

WSA configuration is sub-rectangular with single protrusions on the north and south sides. The area is 3-16 miles east to west and 6-14 miles north to south. It is bounded by the Pennsylvania Canyon road on the west, the Sheepflat/East Pass Road on the north and east, and fence lines, mining access, and range development roads to the south.

The area consists of rugged peaks, deep twisting canyons, rolling hills, jagged rock outcrops, steep cliff faces, and live waters. Elevations range from 3,000 to 7,300 feet above sea level, and the area is covered mostly by pinyon-juniper, with stands of ponderosa pine and quaking aspen interspersed. Current uses include grazing and recreation. Access from Las Vegas can be achieved via several paved and graded dirt roads. The above routes make the western and southern ends of the WSA accessible by two-wheel-drive vehicles. Access to the northern and eastern portions can be achieved by dirt road out of Caliente, Nevada. The Carp-Elgin Road makes access from the south feasible via two-wheel-drive vehicles to the entrance of Cottonwood Canyon which leads directly into the heart of the WSA. The Carp-Elgin Road, Kane Springs Road, and the Rainbow Canyon paved road south from Caliente makes access possible to the western flank of the WSA via Pennsylvania Canyon Road. The Cabin Pines-Ella Mountain Lookout Road and the Sheep Flat-East Pass road allows access by two-wheel-drive vehicles to the northern and eastern boundaries of the WSA. Access via mining and cattle roads to all the remaining portions of the WSA boundary requires four-wheel-drive or high clearance vehicles. Uses of the area include grazing, some mining claim location on the fringes and some recreation.

Criterion No. 1: Evaluation of Wilderness Values

Component No. 1: Quality of the Area's Mandatory Wilderness Characteristics

A. Naturalness

The Clover Mountains central area, by-in-large, does not contain any imprints of man. There are noticeable imprints associated with cattle use in the areas around Pine and Ash Creeks. The stream banks have been broken down and numerous trails crisscross the area. The lower region has an historic homesite with partially constructed corrals and a building. There also is an old road associated with the homestead but the majority of the road has been washed out over the past few years by annual flooding. The location of the homesite is (T.7S., R.68E., Section 19) and affects only the adjacent area.

The Pennsylvania Mining District adjacent to the WSA's northwestern boundary is an area currently in a modified exploration phase of minimal production, consisting of tunneling, drifts, and small amounts of strip mining. The area also includes buildings, trailers, and mining related paraphernalia. The location is T.6S., R.67E., and affects only the area adjacent to it because of topographic and vegetative screening. The boundary roads, as detailed above, are also outside human imprints.

The old homesite could be removed by demolishing the remaining structures and hauling out the debris if it is determined not to be of historic significance. The remaining portions of the access road into the homesite up

Cottonwood Canyon could be ripped and seeded. The rehabilitation of these two imprints could be accomplished with relative ease. The remainder of the WSA does not appear to have been affected by outside imprints.

The few interior imprints are not of sufficient impact to warrant any change in the WSA boundaries. There would be a loss of wilderness values by drawing the boundary inward to exclude the homesite and partial road.

Conclusion

Most of the area within the WSA appears natural and wild. The influence of outside roads and mines is minor because they are not visible from any great distance. Consequently, outside influences affect only the adjacent areas. In summary, 95% of the WSA is unaffected by human imprints.

B. Outstanding Opportunities for Solitude and Primitive and Unconfined Recreation

1. Solitude

The large size of the WSA, 84,935 acres, increases opportunities for solitude. There are no narrow protrusions or appendages, or cherrystems which limit these opportunities. The pinyon-juniper and mountain shrub type vegetation found throughout the central area provides adequate vegetative screening, while the lower area of desert shrub type does not provide adequate screening for that portion of the WSA.

Topographic screening in the central region is outstanding throughout, including narrow twisting canyons, cliffs, rock outcrops, peaks, ridges, and saddles. The lower region also offers some outstanding areas of topographic screening (about 50 percent). The canyons, washes, and draws provide some screening while the rolling hills offer additional screening. Topograhic screening in the remaining 50 percent of the lower region is limited where the terrain is more open.

The majority of the WSA is not influenced by any outside sights and sounds. The northwest corner adjacent to the mining district could impair the quality of the experience if the operation ever started full scale production.

Secluded spots are easily located in all areas of the WSA except for the lower portion where natural screening is not adequate. The attractiveness of Pine and Ash Canyons may decrease opportunities for solitude in those areas because of increased use.

In conclusion, the large size, configuration, excellent natural screening, and availability of secluded spots combine to provide an outstanding opportunity for solitude within the unit.

2. Primitive and Unconfined Recreation

Dayhiking - Portions of the WSA are excellent for dayhiking. The prime areas, both for scenic quality and solitude, are: Cottonwood Canyon, including Pine Creek, in the southwestern portion of the WSA; Stokes Flat and Fife Canyon in the northern portion, and Quaking Aspen in the northeastern portion. All of the above areas offer scenic and challenging hiking opportunities.

Backpacking - All portions of the WSA provide excellent backpacking opportunities. Water is available throughout the WSA but potability is questionable due to cattle contamination. Numerous secluded and highly scenic areas make for outstanding camping. The degree of difficulty and length of stay within the WSA would be up to the individual backpacker but extended (1-2 week) periods could be easily accommodated.

Climbing and Scrambling - Large portions of the WSA qualify for various types of scrambling but no technical climbing opportunities are available.

Nature Study and Photography - Attractions for nature study and photography include Ash Creek, Pine Creek, Coldwater Creek, Cougar Canyon, and all the surrounding high points. These areas offer high quality brightly hued scenic rock formations, narrow canyons, and a variety of vegetation ranging through several biomes including pinyon and juniper, ponderosa pine, aspen, willow, cottonwoods, and cactus. Vistas of varying magnitude are also available.

Hunting - The entire Clover Mountain area is the prime mule deer harvest unit for Lincoln County, consequently, the WSA is a good area for deer hunting and offers a substantial hunting challenge due to remoteness.

Horseback Riding - Almost all of the WSA is accessible by horseback and offers ideal riding and horsepacking recreational opportunities.

Conclusion

Opportunities for primitive recreation are rated outstanding due to the variety and quality of the WSA. The best times of use are April-June and September-October.

Component No. 2: Special Features: Quality of the WSA's Optional Wilderness Characteristics

Botanical

The area known as Quaking Aspen Spring, in the northeast corner of the WSA, is recognized in URA 3 and 4 as an ecologically unique area in that it contains one of the rare stands of quaking aspen in the Caliente Planning Unit. Several large stands of ponderosa pine are located in the north central portion of the WSA.

Zoological

Peregrine falcons (classified "endangered" by the Federal Government) have been sighted in the Clover Mountains. Golden eagles (Federally protected), prairie falcons, and other raptors (protected by the State) may pass through or exist in the area.

Cultural

This WSA is generally considered as highly sensitive for cultural resource occurrences due to the relatively abundant supply of available water, as several springs and many of the major drainages afford a year-round water supply. A healthy population of pinyon pine adds to the sensitivity. Prehistoric site types found within this WSA include open lithic scatters (especially obsidian), rock shelters, and open camp and milling sites adjacent to springs. There is one historic cabin relating to the early Mormon settlement and ranching efforts in Lincoln County. It dates back to the early 1860's and is located at the confluence of Cottonwood and Cougar Canyons.

Conclusion

Although none of the special features in the study area are of national significance, many that are present have importance to local and non-local publics.

Component No. 3: Multiple Resource Benefits: The Benefits to Other Multiple Resource Values and Uses Which Wilderness Designation of the Area Could Ensure

The benefits to other multiple resource values and uses which wilderness designation of the area could ensure are as delineated in the Preface.

Component No. 4: Diversity in the National Wilderness Preservation System

The diversity component is discussed at length in the Preface.

Criterion No. 2: Manageability

Motorized access Problem Areas: There are no access problem areas found within the central area of the WSA; whereas, the terrain of some of the south portion along the base of the WSA

could allow some access problems to develop. Currently, there is no indication that this type of activity will take place, but the possibility exists. The primary origin of access is the mouth of Cottonwood Canyon. The Union Pacific Railroad apparently is controlling ingress and egress through their right-of-way. Even if access is gained through the railroad right-of-way, the severely storm damaged road is nearly impassable, although some jeep trails have been seen.

The entire WSA is composed of public land with no encumbrances of record. There are some range improvements noted on the MTP. The WSA is bordered on the southwest by Union Pacific Railroad (200' wide, CC-08365). Free Use Permits for sand and gravel exist along the country road on the southwest boundary north of the mouth of Cottonwood Creek. There are no utility corridors found within or associated with the WSA boundaries. The entire WSA is currently under post-FLPMA oil and gas leases. There are no known documented oil and gas occurrences in or near this WSA. There are no known histories of seismic exploration work or drilling in or near this WSA. Approximately 770 acres (or 0.9 percent of the WSA) are covered by post-FLPMA mining claims. Other claims have been located but are presently abandoned. No historic mining or production has occurred within the WSA other than small amounts of sand and gravel along Meadow Valley Wash. There is a history of intermittent mining activity and production in mining districts adjacent to the WSA.

Conclusion

The only possible management problems affecting the unit would be mineral conflicts adjacent to the Pennsylvania Mining District. Otherwise, long-term management for wilderness could be assured.

QUALITY STANDARDS

Standard No. 1: Energy and Mineral Resource Values

There are no known economic mineral values in this WSA. Due to the adjacent Pennsylvania Mining District, however, there is an inferred occurrence of subeconomic gold, silver and copper in the area. The gold is not free milling and there is no nearby mill. Due to this fact and to the uncertainty regarding the presence of gold, copper, and silver in economic concentrations and quantities, this potential is not significant in relation to the potential of the remainder of the State. It could, however, be significant to the Planning Unit.

Similarly, the presence of the Viola (Cherokee) Mining District outside the south boundary of the WSA, creates inferred subeconomic gold, silver, copper, lead and zinc values, which with the same limitations as above, may be of importance to the Planning Unit, but not statewide.

Undiscovered barite may exist in volcanic rock in the southwest portion of the WSA. In the eastern portion, there is a speculative potential for perlite and alunite.

Salable minerals such as sand, gravel, and other common varieties exist in many areas of the WSA, but are insignificant because of abundant supplies located closer to transportation nets and markets.

There are no known leasable mineral values present in the WSA, although the entire unit is under oil and gas leases.

Conclusion

A potential conflict may occur near the Pennsylvania Mining District where

strategic minerals are known to have been produced. No major conflicts are foreseen and no strategic minerals are known to occur in the WSA. The oil, gas and geothermal potential should be more fully evaluated with input from industry and the USGS. Existing and abandoned workings or claims could be investigated for site specific information along with any information provided by individuals or claimants.

Geologic mapping could be conducted to delineate previously unmapped non-volcanics to elucidate the structure and stratigraphy of Paleozoic and Mesozoic units (for metallic minerals, barite, gypsum) and of volcanic units (for alunite and geothermal potential). The Clover Unit has the highest metallic potential of the WSAs in the Great Basin GEM study area and the geochemical data collected summer 1983 and soon to be published could be utilized to increase the confidence level of the existing minimal data (for metallic, uranium and alunite potential).

Standard No. 2: Impacts on Other Resources

A. Recreation

Due to inaccessibility, little impact would occur regarding ORV usage. Some opportunity would be foregone, such as the possibility of rebuilding the road up Cottonwood Canyon and negotiating access across the railroad right-of-way, and closing some portions of the southern reaches of the WSA that are now accessible to ORVs.

Beneficial impacts would occur by managing the area for its primary values - backpacking and other primitive recreational pursuits.

B. Range

Portions of five allotments are located within the WSA. All are actively used and season-of-use is summer for three allotments and winter for the other two. As useable roads do not currently penetrate the area, ranching access is by horseback or on foot starting from roads along or near the boundaries. Little effect would occur as existing improvements (fences) could be maintained. New proposals, of which there are two, a fence and a pipeline, would have to meet wilderness management policy guidelines which require that new improvements be primarily for the purpose of resource protection and the more effective management of these resources rather than to accommodate increased numbers of livestock. Establishment of a natural fire regime in the area might result in vegetation improvement.

C. Forestry

Areas of ponderosa pine exist in the WSA. Because of the relative scarcity of this species in the region, the lack of sawmills, and its recreational value, no harvest of these trees is ever likely to occur. Pinyon and juniper stands are potentially useable for fence post, pine nuts, cordwood, and Christmas trees. Due to the lack of access, rugged terrain and far more readily available forest resources elsewhere in the region, foreseeable demand for these products can be met less arduously and more adequately elsewhere.

D. Wildlife

Vegetation conversions to improve mule deer habitat may be permitted, however, establishment of a natural fire regime could have a beneficial impact. Non-game species will generally benefit from continued lack of harrassment and maintenance of more natural habitat conditions.

E. Cultural Resources

Cultural resource surveys, excavations and stabilization efforts will be hampered or precluded. On the other hand, keeping motorized access out of the WSA will reduce opportunities for looting and vandalism. On balance, a beneficial result will accrue to the resource.

F. Energy and Minerals

Exploration for and production of energy resources could be hampered. Although entirely leased, no drilling has occurred in or near the WSA. Due to a lack of qualified data, it is difficult to assess whether a legitimate impact exists or not.

Because of the unit's location between two mining districts, it is a logical exploration target. Since there is a lack of qualified data, the value of this area for this purpose is speculative. Claims have been located in the fringes of the WSA adjacent to portions of the Pennsylvania Mining District. Action on remaining claims would be somewhat restricted, if exploration or development occurred.

In conclusion, wilderness designation would have a degree of impact on availability of potential energy and mineral resources, but not a significant one based on present knowledge.

Conclusion

No impacts of significance are likely to occur with designation of this area. Some minor impacts to mineral exploration may occur. Beneficial impacts will occur to most recreation, wildlife, and cultural resources.

Standard No. 3: Impacts of Nondesignation on Wilderness Values

Nondesignation of the Clover Mountains WSA will forego the inclusion of ecosystems underrepresented in the National Wilderness Preservation System for Great Basin Public Lands, and will forego enlargement of protected opportunities for primitive recreation for the adjacent Las Vegas SMSA.

Conclusion

No sudden diminution of wilderness values is predictable or likely. The inaccessible terrain over most of the WSA, as well as the lack of conflicting resource attractions as presently known, indicate that there is little incentive to commercially develop the area. Over the long term, casual intrusion will likely result in a gradual erosion of wilderness values in the more accessible portions.

Standard No. 4: Public Comment

Moderate public comment was received on the Clover Mountains WSA. Comments ranged from anti-wilderness to boundary adjustment suggestions from mining interests, and pro-wilderness from recreationists and wildlife proponents, with repeated reference to the presence of flowing water and riparian habitat. The only specific comment received during the Scoping and Issue Identification stages was that the Resource Development alternative was preferable and should also include the headwater areas of Horse Springs and Cougar Creek. The allotment holders had several questions regarding the potential effect of designation on his operation, but no specific comment.

Standard No. 5: Local Social and Economic Effects

There will be no significant impacts on social and economic factors for the Lincoln County area regardless of the action taken on the Clover Mountains WSA. The area is relatively close to Caliente so some supplies may be purchased there. Some local residents may regard designation as an example of unwanted federal interference, while environmental group members would regard designation highly satisfactory due to their esteem for the area.

Standard No. 6: Consistency With Other Plans

No other plans are currently in effect, or are contemplated for the Clover Mountains WSA.

DELAMAR MOUNTAINS NV-050-0177

DELAMAR MOUNTAINS NV-050-0177

The Delamar Mountains WSA consists of the southern extension of the Delamar Mountain Range located in south-central Lincoln County, Nevada, approximately 75 road miles northeast of Las Vegas, Nevada. The WSA contains 126,257 acres of public land within the Caliente Planning Unit. There are no private inholdings within the WSA.

The WSA configuration is roughly rectangular in shape, and is 3 to 13 miles east to west, and 23 miles north to south. The study area is bounded by highway 93 and the Delamar Valley Road on the west; the Kane Springs Valley Road on the south; the Mosdale Canyon Road on the east; and, the southern route to the townsite of Delamar on the north.

The area consists of a series of ridges and small valleys tumbling into a rugged mountainous interior with elevations ranging from 2,600 to 6,300 feet. Bajadas extend from the mountain bases to the western, southern, southeastern and portions of the northwestern boundaries. Access to the western boundary of the WSA from Las Vegas is achieved via Highway 93. Kane Springs Road and the Delamar Powerline Road - both bladed and maintained dirt roads - intersect Highway 93 and allow access to the southern and northwest portions of the unit. Three cherrystemmed roads out of the Gregerson Basin and Kane Springs areas, allow access via high clearance or four-wheel-drive vehicles into the eastern portion of the study area. One cherrystem road allows access into the central eastern portion of the Unit. Uses consist of grazing, hunting and material sites for road construction.

Criterion No. 1: Evaluation of Wilderness Values

Component No. 1: Quality of the Area's Mandatory Wilderness Characteristics

A. Naturalness

In the plateau core area, Pony Reservoir and Well Site Road cherrystem (T.8S., R.64E., Secs. 17, 18, 19, T.8S., R.63E., Secs. 24, 25, 36, T.9S., R.64E., Secs. 6, 7) is a five-mile bladed, user maintained road into the Pony Well Site and pipeline. A way also angles southwest away from this well site and can be seen for several miles. An old earthen stock reservoir can be found in (T.9S., R.64E., Sec. 17) with another way leading from Pony Well to the reservoir. Along the northeastern boundary, an old range project in the form of a fenced seeding impacts the WSA along with another fence (T7S., R.64E., Secs. 20, 25) and associated way.

On the western bajada, several almost obscure ways try to make it up into the WSA, but natural terrain stops them after a half mile or so. Some of the larger washes do show a single track or two from random ORV exploration or hunting.

Along the southern bajada, there are occasional vehicle tracks leading cross country toward the interior of the Unit but the only noted vehicular access taking place is up the Bomber Wash (T.10S., R.63E., Sec. 33) for hunter access. This impact is very light and not of a significant nature. Flight in the summer of 1983 showed no tracks present. A cherrystemmed (T10S., R.64E., Secs. 8, 9, 15, 16, 17) three-mile user maintained road to Willow Spring impacts the east bajada and there is a short one-mile access road to an earthen stock reservoir in the east mountain region.

The west side of the entire WSA abuts against one of the major utility power corridors running north/south through the western United States. When construction is complete, at least one 500 KV DC powerline will run the length of the WSA. The boundary roads,

as detailed above are also visible. The entire WSA is frequently overflown by military jets from Nellis Air Force Base. It is not unusual to see these jets flying at 50 to 200 feet above the surface.

In the plateau core area, the cherrystem road, well site, and stock reservoirs impact the immediate area and portions of the Unit where topographic and vegetative screening are insufficient to cover the imprints. The entire west bajada is affected by the boundary road and the powerline corridor. The southern bajada is also affected by the boundary roads and the signs of vehicular travel. The cherrystem road into Willow Spring also affects the south and eastern bajada. The mountain areas to the east are only affected in the area immediately adjacent to the stock reservoir, and the associated way leading to the development. The outside influences affect only the adjacent areas. In summary, about 65 to 70% of the WSA is unaffected by human imprints.

The western boundary of the WSA could be drawn inward to the base of the cliff areas to exclude the imprint of random ORV use, the excessive sights and sounds from the powerline corridor, Highway 93, and the Delamar Valley boundary road. The south and east bajada regions could also be drawn inward to eliminate the vehicular use in the area, and the cherrystem road to Willow Spring. The eastern boundary would need to be drawn inward from the Pony Reservoir northward - this line should follow the low ridge running east/west all the way across the northern portion of the WSA. This move would eliminate the seeding, fence, way, and random vehicular use. The central plateau region, with the associated cherrystem road, could not be separated without losing outstanding wilderness values.

Conclusion

Within the WSA, most of the area appears natural and wild. The long cherrystemmed road into the Pony Well site and the seeding along the northeast end are the only areas where naturalness has been somewhat diminished. The influence of outside roads and power corridors is a major impact to the western ridgeline, slopes and bajadas and portions of the south-facing regions of the WSA because they are visible from great distances. The aircraft also have a negative influence because their presence destroys the natural stillness of the secluded desert.

B. Outstanding Opportunities for Solitude and Primitive and Unconfined Recreation

1. Solitude

The large size of the WSA increases opportunities for solitude. The desert shrubs, mixed with a small open stand of pinyon/juniper, do not provide adequate vegetative screeing anywhere in the WSA.

The topographic screening in the plateau core area is severely limited. There is limited topographic screening provided by the cliff and bajada along the west side - this area does offer some topographic relief if a visitor actively seeks such features. The southern and eastern bajada areas again offer limited topographic screening, provided by the shallow washes and low hills found adjacent to the uplands of the WSA. Several deep twisting canyons that issue from the central core region and into the southern bajada do offer outstanding topographic screening provided by the cliffs and deeply eroded side drainages. Bomber Wash probably offer the WSA's most outstanding topographic screening. Topographic screening is outstanding in portions of the eastern mountainous region due to the numerous hills, peaks, washes, and draws.

The majority of the WSA is remote from outside influences with the exception of the Pony Reservoir cherrystem road and the random aircraft overflights

which destroy one's sense of aloneness.

The concept of secluded spots usually is attributed to vegetative and/or topographic screening but can be found or enhanced by large open areas. As previously discussed, there are several areas where outstanding solitude can be found, but one does not find many in the WSA. The primary areas where these spots can be found, lie in Bomber Wash and its associated drainages, along with selected areas in the more mountainous region of the east side of the WSA. The attractiveness of Bomber Wash would probably decrease opportunities for solitude in the area due to increased use. The sheer size of the area contributes to the opportunity of seclusion.

2. Primitive and Unconfined Recreation

Dayhiking - Most portions of the Unit could be used for dayhiking, although long bajada areas would not be particularly attractive. Some of the long twisting canyons opening to the south, including most notably, Bomber Wash are likely routes. On the north, a large northeasterly trending canyon makes an attractive hiking route. The higher peaks in the central and eastern portions are good destinations and provide expansive views of the Sheep Range, Pahranagat Valley, Meadow Valley Range, Mormon Mountains, Kane Springs Valley and beyond.

Many of the canyon areas and some of the boundary zones have rather spectacular cliffs which provide an attraction. In the canyons, these cliffs provide a sense of enclosure and isolation as well.

Spring or fall would be the most attractive time of the year, but all seasons could be used.

Backpacking - Numerous opportunities for loop routes and through routes could be easily arranged, but lack of water could be a problem. The ruggedness of the areas would make the washes the best routes for travel.

Climbing and Scrambling - Large portions of the Unit lend themselves to various types of scrambling and climbing due to the steepness and rocky terrain.

Nature Study and Photography - Opportunities for good photography of high, rugged, plateau type rock formations, rugged cliffs and Joshua trees are available throughout much of the WSA. The opportunity to observe and photograph desert bighorn sheep is possible within the Unit.

Hunting - Opportunity is limited for anything but scattered upland bird shooting.

Horseback Riding - Due to the lack of water, any riding would have to be limited to the east portion out of Gregerson Basin.

Conclusion

The WSA lends itself to all types of primitive recreational opportunities, however, some precautions must be undertaken to ensure water is available in order to allow for any extended time periods. The size of the Unit and the excellent topographic diversity make these recreational opportunities outstanding.

Component No. 2: Special Features: Quality of the WSA's Optional Wilderness Characteristics

Geological

The central-east portion of this area is the west portion of the Kane Springs volcanic center. A thick, essentially horizontal sequence of volcanic ash outpourings from numerous volcanic centers in the region cap the southern Delamar Mountains as revealed in the ash and tuff exposures in the extensive bench, mesa, and butte areas. The range was subjected to extensive faulting during the ancient development of the Kane Springs Caldera structure which has since been partially exhumed in Kane Springs Wash and is currently under study by researchers.

Erosion has exposed the underlying bedrock formations -- which due to their jumbled and variously dipping, folded and overturned orientation form the steeply incised ravines and canyons along the south and west flanks of the range. A nearly complete Paleozoic section of fossiliferous marine sediment is exposed. Many ancient fossil forms have been collected and studied, mostly by the USGS, and several fossil localities and finds are important to invertebrate paleontology in a regional sense and a worldwide correlation effort.

The disposition of the complexly folded and faulted volcanic and marine sequences is, in addition to caldera development, related to thrust movements. The Delamar Mountain thrust and fold plate is thought to be a part of the regional Gas Peak thrust plate exposed in the Sheep Range to the Southwest. The north portion of this WSA is cut by several faults which truncate these thrust plates and align with major right lateral slip faults, shear movements related to ore deposits.

Botanical

According to the most recent USFWS list there are no federally listed threatened or endangered plant species in the Delamar WSA. However, Astragalus nyensis Barneby or Nye milkvetch, which is protected by State Statute (NRS 527. 270), may exist in the vicinity and a permit for its collection is required.

Zoological

The desert tortoise present in portions of the WSA, is State listed as "rare" in Nevada and classified by the Bureau of Land Management as a sensitive species. Golden eagles (Federally protected), prairie falcons, and other raptors (protected by the State) may pass through or exist in the area. The spotted bat (classified "endangered" by the State) might exist in the WSA.

Cultural

Over a dozen prehistoric sites have been recorded within this study unit. Site types representative of the WSA include many open lithic and ceramic scatters, rock shelters, rock art sites and milling sites. In addition, the Kane Springs Wash area located immediately adjacent to the study unit to the south and east represents a highly sensitive complex of sites in the form of an obsidian quarry source with related open obsidian lithic workshop sites scattered along Kane Springs Wash. Also, Delamar Lake, which is located immediately adjacent to the northeast corner of the study unit, represents another highly sensitive area containing camp sites along the rim of the playa, rock art sites, and lithic scatters.

Conclusion

Although no special features in the study area are of national significance, many that are present have importance to local and non-local publics.

Component No. 3: Multiple Resource Benefits: The Benefits to Other Multiple Resource Values and Uses Which Wilderness Designation of the Area Could Ensure

The general benefits to other multiple resource values and uses which wilderness designation of the area could ensure are as delineated in the Preface.

Specific benefits with this WSA are: Important wildlife habitats exist within this WSA. The southern, southwestern and southeastern bajadas contain several thousand acres of tortoise crucial habitat. The south-central region contains a large area of bighorn sheep yearlong habitat, and deer yearlong habitat occupies the central and northeastern portions. Designation of the unit would benefit these species by prohibiting ORV use

and by maintenance of more natural habitat conditions.

Vegetation communities which are common in the region, but lightly used, would be preserved.

Scenic quality of the lands enclosing both Coyote Springs and Kane Springs Valley would be protected. Since these are visible from Highway 93 and from the Kane Springs County road (proposed to become a State Highway), these lands are important to the view shed. Countervailing to this is the fact that designation could restrict options for powerline location to the extent that visual impact could be increased.

Component No. 4: Diversity in the National Wilderness Preservation System

The diversity component is discussed in the Preface.

Criterion No. 2: Manageability

Motorized Access Problem Areas: The terrain of the north portion of the area makes it accessible to vehicular travel; casual and random use has taken place along this boundary. The access off the Pony Reservoir Road and Gregerson Basin Road provides ample opportunity to leave the known routes. Closing the existing ways and controlling this random travel would be nearly impossible. Access along the west side of the WSA does not appear to be too much of a problem at the present time. Casual and random use has occurred up several washes. The terrain, however, does not lend itself to ready access. Maintaining control along this boundary would prove to be a challenge, but not insurmountable. All washes and most of the terrain in the south and east are accessible to vehicular travel. Current use patterns are low due to the distance of travel for planned destinations. Little evidence of such use persists on the ground. Control would be difficult. Access along the east side is restricted to the boundary road and the short way leading to the stock reservoir. The terrain limits use and control would take care of itself.

BLM has been ordered by settlement of litigation to provide a permanent water in the pasture encompassing the Pony Well cherrystem road. A well was unsuccessful and some other means such as a pipeline or catchment may be necessary to accomplish the requirement. This may or may not cause some manageability problems, depending upon whether installations could be confined to the cherrystem road.

The entire WSA is composed of public land with no encumbrances of record. There were some range improvements noted on the MTP. The WSA bordered on the west side by Highway 93 (400 feet wide, Nev-060130). The WSA is bordered on the northwest side by an existing powerline (CC-020073, 100 feet wide) in addition, one 500 KV line has been approved, for construction, to parallel the existing line, (Intermountain Power Project). Currently, another pair of 500 KV powerlines are being planned with the preference to parallel the other two, (White Pine Power Project). However, due to the WSA status of the preferred route, the project has proposed an alternate route down the Kane Springs Wash Valley. The entire WSA is under oil and gas leases with a total of 68 leases. There are no known documented oil or gas occurrences. No known history of seismic exploration work or drilling exists in or near this WSA. No mining claims exist within or near this WSA. No known historic mining or production has occurred, other than minor sand and gravel extractions along U.S. Highway 93 and minor material extraction along the Kane Springs Road.

Conclusion

Two management problems affecting the unit are vehicle access control in portions and the paralleling utility corridor external to the WSA's western boundary. One could preclude the assurance of manageability in accessiable areas over the long term for

wilderness. The other would have a depreciative effect on the southwestern sections.

QUALITY STANDARDS

Standard No. 1: Energy and Mineral Resource Values

No known locatable, strategic or critical mineral resources are known to occur in or near this WSA. Due to discoveries of mineralized areas in similar rock types in the northern part of the Delamar Range and elsewhere, the possibility of undiscovered resources exists. However, the potential of undiscovered locatable minerals in this WSA is at best, described as speculative. This level of classification has the lowest degree of assurance or significance other than no potential, but any valid new discovery would be significant.

Salable sand and gravel minerals exist along the southwest and southeast WSA boundaries in alluvial fan and wash materials along Highway 93 and the Kane Springs Road. Common variety stone materials exist throughout the WSA in bedrock and volcanic areas. The salable mineral potential in this WSA is insignificant because material sites and free use areas are plentiful along roads and highways near the WSA.

There are no known leasable mineral values present within this WSA, although the entire unit is under oil and gas leases.

Conclusion

No major conflicts are foreseen and no strategic minerals are known to occur in the WSA. The oil, gas, and geothermal potential should be more fully evaluated with input from industry and the USGS. Existing and abandoned workings or claims could be investigated for site specific information along with any information provided by individuals or claimants. Geologic mapping could be conducted to delineate previously unmapped non-volcanics to elucidate the structure and stratigraphy of Paleozoic and Mesozoic units (for metallic minerals, barite and gypsum) and of volcanic units (for alunite and geothermal potential).

Standard No. 2: Impacts on Other Resources

A. Recreation

Levels of recreational use within the WSA are unknown. Some ORV use via washes into the fringe areas occasionally occurs. Most likely this travel is for the purpose of upland bird hunting, or possibly rock hounding. No recreation management plans are anticipated for the area, and ORV designation has not been completed. Consequently, some portions of the WSA now accessible to ORVs and "drive in" hunting opportunities would be foregone.

B. Range

The Delamar WSA contains portions of four actively used grazing allotments. The roads penetrating the area are cherrystemmed; thus, little effect would occur as existing improvements could be maintained. New proposals would have to meet wilderness management policy guidelines which require that new improvements be primarily for the purpose of resource protection and the more effective management of these resources rather than to accommodate increased numbers of livestock. Since an attempt to find water by drilling a well along the Pony Well cherrystem road ended in failure, other means of providing stock water are necessary and may be difficult to keep within non-impairment standards.

C. Cultural

Some cultural resource surveys, excavations and stabilization efforts will be precluded or hampered.

D. Energy and Minerals

Exploration for and production of

energy resources could be hampered, but due to a lack of qualified data, it is difficult to assess whether a legitimate impact exists or not.

E. Lands

This WSA is contiguous to Highway 93 and just a short distance west (less than 1 mile, generally) is the boundary to the Nevada Test Site and Desert National Wildlife Range. This creates a rather narrow slot for major transmission lines to come through and this, in turn, may create additional visual impacts.

Conclusion

No impacts of significance are likely to occur with designation of this area. Some minor impacts to mineral and energy exploration may occur.

Standard No. 3: Impacts of Nondesignation on Wilderness Values

Nondesignation of the Delamar Area would forego the inclusion of ecosystems underrepresented in the National Wilderness Preservation System, and would to a certain extent, forego the enlargement of protected opportunities for primitive recreation for the Las Vegas SMSA. A gradual erosion of the area's low and moderate wilderness values would occur. Areas of outstanding wilderness values would probably remain in the more rugged portions.

Conclusion

Scattered access constructed for range improvements, or possible communication sites and random ORV use will result in a slow erosion of wilderness values, particularly in the fringes, but also in the central portion as well. Rugged areas will retain wilderness characteristics for the long term.

No range improvements were proposed in the Caliente MFP or subsequent CRMP meetings. But there is a desire to develop water in the central-eastern portion of the area near the Pony Well road. Therefore, it is likely that range developments in that area may impair wilderness values. It is also likely that ORV usage originating from this road will continue to impair. This would likely be significant only in localized areas adjacent to Pony Well Road. ORV use on the bajada areas, particularly on the south, will probably intensify because of its proximity to the highway and Las Vegas. This will result in impairment of wilderness values.

Operations on material sites along boundary roads will continue and will impair wilderness values in the vicinity. Construction of powerlines along the western bajada will impair wilderness values. Other possibilities include the construction of piplines along the western area and powerlines or pipelines along eastern or southern areas.

Standard No. 4: Public Comment

Most public comment on the area centered around proposed powerline corridors and the controversy surrounding energy intrusions. One rancher was concerned about future conflicts with his livestock operation.

During the inventory process, many respondents indicated a lack of knowledge of the area. Environmentalists generally cited favorable topography, historical connections, and other observations that augured for further study. Energy and minerals people noted that the northern one-third was unevaluated for minerals, that gold mineralization may extend under the WSA under a shallow nonmineralized cap, and that the area was important for geology students study of major thrust faulting. An ORV group opposed WSA status because of the presence of motorcycle trails, corrals and lack of anything unusual or outstanding, and lack of solitude.

During open house meetings, White Pine Power Project people reiterated earlier concerns about interference with the

power corridor proposal along the unit's western side. The Department of Wildlife representative at the Caliente open house supported extending suitable wilderness recommendations to Highway 93 to encompass crucial desert tortoise habitat. A subsequent letter from the Department supported this stating, "This area has been described as crucial desert tortoise habitat and could well be protected under wilderness management. It is a point worthy of consideration since few desert tortoise use areas are found within the wilderness system."

Standard No. 5: Local Social and Economic Effects

Designation or non-designation would have little social or economic effects. The area is relatively remote from both Caliente and Las Vegas, economic effects on either would be insignificant. A slight additional cost may accrue to grazing permittees in the WSA. Some local residents would regard designation as an example of federal interference. Environmental group members would regard designation favorably.

Standard No. 6: Consistency With Other Plans

There are possible conflicts with the aforementioned powerline corridor concept as proposed by various power and energy utilities.

MEADOW VALLEY RANGE NV-050-0156

MEADOW VALLEY RANGE NV-050-0156

The Meadow Valley Range WSA is composed of the Bunker Hills area, the entire range of the Meadow Valley Mountains and a large central bajada. Located in south central Lincoln County, Nevada, approximately 55 miles northeast of Las Vegas, Nevada. The study unit contains 185,744 acres of public land within the Caliente Planning Unit. There are no private inholdings within the WSA.

The configuration of the WSA is somewhat the shape of a boomerang, with one appendage sticking out like a toe in the northeast end. The dimensions of the unit are 8-12 miles east to west and about 30 miles in an arc north to south. The area is bounded by the old State Highway 7 on the south and west, the Kane Springs Road on the north, and the Meadow Valley Wash Road to the east.

The area consists of three major landform regions. The first, called the Meadow Valley Range, forms the north and west side of the WSA and contains rugged limestone peaks and canyons. The second region, called the Bunker Hills, are low angular hills on the south side of the unit consisting of fault blocks characterized by rugged erosion features. The third region consists of a tremendous broad sweeping bajada of gently rolling lands sloping east and southeast from the Meadow Valley Range to Meadow Valley Wash. Elevations range from 3,400 to 5,700 feet.

Access from Las Vegas is achieved via Highway 93 and the Kane Springs Valley Road. Limited access can be obtained via the Meadow Valley Wash Road to the extreme northeast portion of the WSA. These routes are driveable by two-wheel-drive vehicles. Any other access to the WSA boundaries requires high clearance or four-wheel-drive vehicles.

Uses of the area include grazing in some portions of the area and hunting. Occasional ORV use occurs in the washes on the southern edge and in the Vigo Canyon area.

Criterion No. 1: Evaluation of Wilderness Values

Component No. 1: Quality of the Area's Mandatory Wilderness Characteristics

A. Naturalness

The Meadow Valley Mountains portion of the WSA does not show any noticeable imprints of man. An occasional vehicle track can be found in several of the washes along the west boundary, but there is no regularity to this use.

In the Bunker Hills area there are also occasional vehicle tracks but no established ways throughout the area. Wildcat Wash and Farrier Wash have had historic seasonal ORV events which appear to have left very little overall imprint on the area.

In the Vigo Canyon drainage area there are several old ways crossing from Avertt Reservoir, (T.8S., R.66E., Sec. 34) which is just outside the WSA to Hackberry Canyon and Hackberry Spring. An old Quarry and Texaco Oil drill site located in T.12S., R.65E., Sec. 20, has an associated cherrystem road run from Meadow Valley Wash to the site, (T12S., R.65., Secs. 14, 15, 16, 17, 18, 19, 20). Several ways can be attributed to the drill site access.

The primary noticeable imprints located ouside the WSA are the boundary roads, as detailed above. Avertt Reservoir is another imprint. Kane Springs Valley has a series of wildlife guzzlers which are closely associated to the WSA boundary. The entire WSA is frequently overflown by military planes from Nellis Air Force Base.

There are no affected portions in the Meadow Valley Range Areas. The majority of the Bunker Hills are also unaffected by imprints. The washes

along the southern boundary do show signs of seasonal vehicle use when fall and winter rains have not washed the tracks away. The cherrystem road and associated ways into the drill site affect only the area adjacent to it because of topographic screening. Outside influences affects only the adjacent areas. In summary 95 percent of the WSA is unaffected by human imprints.

The mineral/energy sites would require grading, ripping, and reseeding. Ways and cherrystem roads would also require the same. The low annual precipitation (under 5 inches) would severely hamper rehabilitation.

The primary affected area within the WSA is the mineral/energy site. To separate this from the remainder of the WSA would create a loss of high wilderness values and public support. The remainder of the WSA would not require any changes in the boundary.

Conclusion

Within the WSA, most of the unit appears natural and wild. The influence of the outside roads, and the interior drill site are not of a sufficient size or nature to cause substantial damage, and do not have a lasting affect on the remaining portion.

B. Outstanding Opportunities for Solitude and Primitive Unconfined Recreation

1. Solitude

The massive size of the WSA increases opportunities for solitude. The northeast tip of the WSA protrudes out in the shape of a large toe. This tip is of insufficient size to provide solitude. The desert shrub vegetation community does not provide adequate vegetative screening anywhere throughout the WSA except in the toe area. Topographic screening in the Meadow Valley Mountains is outstanding throughout, including cliffs, peaks, steep narrow canyons, and rock outcrops. The Bunker Hills provide some solitude but the screening is limited due to the low hills and shallow washes and draws. The solitude that is provided is associated with the angular outcrops. The bajada offers limited screening, but due to its vast size, a certain amount of solitude could be experienced.

Most of the WSA is remote from outside influences, however, military aircraft destroy the desert stillness, when they hurtle across the WSA at 50-300 feet above the ground.

Conclusion

Secluded spots are easily located within the Meadow Valley Mountains and the Bunker Hills areas. The bajada area does not offer the same type of secluded spots. Due to the WSA's vastness, a user feels seclusion most of the time.

2. Primitive and Unconfined Recreation

Dayhiking - Hiking is good throughout the WSA. Good areas are the Sunflower Mountain - Grapevine Spring area on the west boundary of the WSA and the Vigo Canyon - Hackberry areas in the eastern portions of the WSA. All of the above are highly scenic, allow for solitude, and are challenging hikes.

Backpacking - Numerous and varied opportunities for loop routes and through routes could be set up. Areas such as mentioned in the dayhiking segment could easily be expanded into longer trips at the descretion of the individual backpacker. Water could be a problem as known springs and seeps are rare in the WSA.

Climbing and Scrambling - All portions of the WSA would qualify for various types of scrambling. Limited climbing opportunities are available.

Nature Study and Photography - This is an excellent area for photography of desert bajadas and grand vistas from

numerous high points throughout the WSA. It might also offer an excellent opportunity to observe and photograph desert bighorn sheep.

Hunting - This WSA provides a good, challenging, and rugged opportunity for hunters, with good hunting for deer and upland birds and few tags for desert bighorn sheep.

Horseback Riding - The eastern portion of the WSA has been used for horseback riding, and other areas within the WSA would provide good riding.

Conclusion

The WSA is large and challenging enough to offer good opportunities for all types of primitive recreational usage.

Component No. 2: Special Features: Quality of the WSA's Optional Wilderness Characteristics

Geological

The Meadow Valley Mountain Range is simply an eastward tilted block of sediments that represent nearly every geologic period except the Precambrian, Jurassic, and Cretaceous. Sunflower Mountain, a prominent central feature of this range, is the erosional remnant of a thick volcanic cap of gently east dipping layers of ash and debris covering the northwestern portion of the range. These smoothly weathered thick beds of hardened and fused ash (lithified ash tuff and welded tuff) were deposited from outpouring of the numerous ancient volcanic centers in the region. The range was extensively faulted during development of the Kane Springs caldera structure which is partly exhumed in Kane Springs Wash and is currently being researched.

The underlying older rock formations (Paleozoic and early Mesozoic) are well exposed in the southwest and southeast portions of the range and form rugged canyons and ridges with limestone and quartzite talus slopes. From the bold escarpment on the west these rock units dip gently east into the range and form a dip slope in the east. Further east, the rock units become steeply inclined to where extensive folding forms a large arcuate, non-planar syncline-anticline pair and an overturned (synform) anticline.

The south-central portion of the area is a rolling, hilly bedrock pediment. The central and northeast flanks of the range are buried by an apron of alluvial fan sediments reaching to the canyon of Meadow Valley Wash which is presently dissecting and downcutting the fan sediments. A window of red beds with abundant gypsum and gypsiferous shale strata protrudes through older rocks west of Meadow Valley Wash near Vigo. This area is the westernmost exposure of these Colorado Plateau sediments. The overturned anticline and the window of younger rocks protruding through older formations is thought to represent features of large scale thrust faulting.

Apache tears and perlite, decomposed and fractured volcanic glass with properties suitable for construction material, are found within volcanic beds in the northwest flank of the range in the northern portion of this WSA. Silicified logs and wood fragments stained with iron oxides have been found in the ancient non-marine sediments west of Vigo. The Kaibab limestone, a well known formation of the Grand Canyon, is exposed west of Rox in the Meadow Valley Wash and contains abundant chert nodules. No vertebrate fossil occurrences are known, however, invertebrate fossils from the older marine rock units have been collected and studied and are important in a regional sense and in a worldwide correlation effort.

Botanical

According to the most recent USFWS list there are no federally listed threatened or endangered plant species in the vicinity of the Meadow Valley WSA. However, Arenaria stenomerees Eastwood, Meadow Valley Range Sandwort, and

Astragalus nyensis Barneby, Nye Milkvetch are protected under State Statute NR5-527.270 and a permit for collection is required. These species are located in the vicinity of the Meadow Valley WSA.

Zoological

Golden eagles (Federally protected), prairie falcons, and other raptors (protected by the State) may also pass through or exist in the area. The spotted bat (classified "endangered" by the State) may exist in the Meadow Valley WSA.

Cultural

This WSA should be considered as being archaeologically sensitive although few prehistoric sites have been recorded. Site types expected to be found include many rock shelters, open lithic and ceramic scatters, and milling sites. In addition, Grapevine Spring, located west of the WSA boundary, exhibits a major prehistoric site complex with pictographs, bedrock manos and metates, and lithic and ceramic scatters. Probably the most sensitive portion of this WSA includes the segment which parallels Meadow Valley Wash. This drainage, with perennially available water, is rich in cultural expressions, containing a major concentration of petroglyphs, rock shelters, rock alignments, pueblo sites, and aboriginal trail alignments.

Twelve historic sites are recorded for this WSA relating to the Union Pacific Railroad and early ranching efforts in the areas.

Conclusion

None of the special features in the study area are of national significance, but many that are present have importance to local and nonlocal publics.

Component No. 3: Multiple Resource Benefits: The Benefits to Other Multiple Resource Values and Uses Which Wilderness Designation of the Area Could Ensure

The benefits to other multiple resource values and uses which wilderness designation of the area could ensure are as delineated in the Preface.

Component No. 4: Diversity in the National Wilderness Preservation System

The diversity component is discussed in the Preface.

Criterion No. 2: Manageability

Motorized Access Problem Areas: The few ORV tracks that are associated with the Meadow Valley Range area are not of sufficient nature to be of concern. The vehicular travel up the washes in the Bunker Hills area is usually associated with historic, seasonal ORV events. Annual rainfall normally wipes out the past season's imprints and the impact is of little or no consequence. The terrain of the entire bajada region makes most of the area accessible to vehicles. Controlling this area once access to the region is gained would be very difficult. However, access to the region from Meadow Valley Wash is fairly restrictive except for Vigo Canyon and the associated drainage area.

The entire WSA is composed of public land with no encumberances of record. There were some range developments noted on the MTP. The WSA is bordered on the east side by Union Pacific Railroad (200' wide, CC-06192) and WSA 0161, the Mormon Mountains WSA. There are no utility corridors within or associated to any of the boundaries of the area, nor are any presently planned.

The entire WSA is presently under appication or lease, all post-FLPMA.

Some seismic exploration has occurred near the WSA, but there are no known oil or gas occurrences or histories of seismic exploration work within this WSA, although field evidence of one seismic line across the northern third of the unit was found in 1983. Texaco Oil Company drilled a deep test in 1972 with no known results within the south part of this WSA.

Approximately 1,100 acres (or six percent of the WSA) are covered by post-FLPMA lode mining claims. Other claims have been located but are presently abondoned. The only known historic mining or production, other than small amounts of sand and gravel, occurred from gypsum prospects which are apparently of questionable interest and which lie west of Galt near Meadow Valley Wash.

Conclusion

No management problems affecting the unit are present; thus, long term management for wilderness could be assured except for the Vigo Canyon portion.

QUALITY STANDARDS

Standard No. 1: Energy and Mineral Resource Values

No strategic and/or critical mineral resources are known to occur in or near this WSA. No known locatable mineral values exist within this WSA. A small region west of Vigo has inferred hypothetical undiscovered resources of gypsum in unknown amounts. Speculative undiscovered gypsum resources are probably extensive southwest from the area identified, in gypsiferous Permian redbeds. The hypothetical gypsum prospect is less significant than several other gypsum prospects in the Caliente Planning Unit. The other gypsum prospects in the Planning Unit are identified submarginal subeconomic resources or are undiscovered hypothetical resources. Undiscovered perlite resources may exist in the north and northeast portion of this WSA, but, these areas have not been identified as undiscovered speculative resources, the lowest degree of economic feasibility and geologic assurance. Other significant perlite resources with large identified reserves are presently mined in this Planning Unit and other gypsum resources are produced in the State which are much closer to current markets.

Salable sand and gravel mineral values exist along the northwest, southwest and east WSA boundaries near Lincoln County's Kane Springs graded road, Highway 93, and adjacent to portions of the Union Pacific Railway track and access road. Salable common variety stone materials exist along roads and highways near the WSA. Other construction materials are accessable near the railroad right-of-way, and building stone materials exist, but they are remote from existing markets.

No known leasable mineral values exist in this WSA. No documented occurrences of oil, gas, or geothermal resources are known, although the entire WSA is under oil and gas leases. One lease expired due to lack of exploration effort, and one exploratory deep test was conducted inside the WSA.

Conclusion

No major conflicts are foreseen and no strategic minerals are known to occur in the Meadow Valley Unit. The oil, gas, and geothermal potential should be more fully evaluated with input from private industry and the USGS.

Standard No. 2: Impacts on Other Resources

A. Recreation

Recreation within the WSA is light - some ORV use via washes into the area has and does occur. Most likely this ORV travel was for hunting and/or range development-maintenance activities. No recreation management plans are scheduled for the area, and ORV designation has not been completed.

Portions of the WSA now accessible to ORVs and motorized hunting activities would be foregone, but beneficial impacts would occur to primitive recreational pursuits.

B. Range

The Meadow Valley WSA contains portions of nine allotments. Eight of the nine allotments are actively used. The ways and trails used by range operators are not cherrystemmed; thus, some effect could occur as improvements and maintenance would have to be implemented via horseback. Any new proposals would have to meet Wilderness Management Policy guidelines which require that new improvements be primarily for the purpose of resource protection and the more effective management of these resources rather than to accommodate increased numbers of livestock.

C. Wildlife

Vegetation conversions solely to improve game habitat will not be permitted.

D. Cultural Resources

Some cultural resource surveys, excavations and stabilization efforts will be precluded or hampered.

E. Energy and Minerals

Exploration for and production of energy resources could be hampered, but, due to a lack of qualified data, it is difficult to assess whether a legitimate impact exists or not.

Conclusion

Impacts of significance are unlikely to occur with designation of this area. Some minor impacts to mineral and energy exploration may occur.

Standard No. 3: Impacts of Nondesignation of Wilderness Values

Nondesignation would forego inclusion of ecosystems underrepresented in the National Wilderness Preservation System, and will forego enlargement of opportunities for primitive recreation for the Las Vegas Standard Metropolitan Statistical Area.

Standard No. 4: Public Comment

In the inventory phase, public comment was about evenly divided on nonwilderness and pro-wilderness. Mining corporations and power companies are opposed to wilderness, pointing out intrusions and possible impacts on the wilderness from external facilities like power generation and transmission facilities. Various comments recommending wilderness designation delineated the vast size of the area, lack of evidence of man in the vast views, and opportunities for solitude.

During subsequent study phases, comments have been minimal. State Water Planning noted the WSA is wholly or partly in a designated ground water basin. One open house visitor supported the Resource Development Alternative and an allotment holder stated that he had not been in many of the more remote portions of the unit.

Standard No. 5: Local Social and Economic Effects

None.

Standard No. 6: Consistency with Other Plans

No other plans are in effect or are anticipated for the Meadow Valley Range Area.

MORMON MOUNTAINS NV-050-0161

MORMON MOUNTAINS NV-050-0161

The Mormon Mountains WSA contains the entire Mormon Mountains Range and is located in southeastern Lincoln County, Nevada, approximately 75 miles northeast of Las Vegas, Nevada. The WSA contains 162,887 acres of public land within the Caliente Planning Unit. There are no private inholdings within the WSA.

WSA configuration is rounded in shape-12 to 16 miles east to west and 15 to 29 miles north to south. The study unit is bound by the Carp-Elgin Road on the north and east; the Meadow Valley Wash Road on the west; and, a hunting access road/seismic "thumper" trail on the south.

The area consists of a rugged, jumbled, mountainous area made up of bajadas, deep canyons, and rugged escarpments. Elevations vary from 2,200 to 7,500 feet. Access from Las Vegas is achieved via the Meadow Valley Wash Road running north from I-15. Several cherrystemmed roads run into the heart of the WSA. The main north-south access roads are maintained gravel-dirt roads suitable for two-wheel-drive or four-wheel-drive vehicles only. Vehicle shuttles could be arranged but would probably entail some logistical problems.

Criterion No. 1: Evaluation of Wilderness Values

Component No. 1: Quality of the Area's Mandatory Wilderness Characteristics

A. Naturalness

Impacts within the Mormon Mountain core area are: The Davies Spring water development (T.11S., R.67E., Sec. 21) is an old range project with an associated cherrystem road which extends through the west bajada into the core area; the Whitmore Mining Area (T.12S., R.67E., Secs. 1 and 2) consisting of minor exploration, assessment work, and an associated cherrystem road which also extends through the Moapa Peak region; a lightly traveled two-mile way following the canyon into the old historic spring site at Hackberry Springs; a two-mile stretch of a cherrystem road originating along the eastern boundary and ending at Horse Springs; a water trough and pipeline from Horse Springs is located in (T.11S., R.68E., Sec. 29); a heavily claimed mining potential area (T.11S., R.68E., Sec. 19); the northern end of the core area has three large water catchments (guzzlers) for big game animals (T.11S., R.68E., Sec. 6; T. 10S., R.67E., Secs. 11 and 34); and finally, a way originating along the north boundary and heading south through the north bajada into the core area and terminating at an historic mine (T.10S., R.68E., Sec. 35).

Impacts on the western bajada consist of a large cherrystemmed mining area which excludes almost three sections of land due to assessment and associated mining activities (T.11S., R.66E., Secs. 23, 24, 26) and the access road (T.11 S., R. 66 E., Secs. 21, 22, 28, 29, 31, 32); on the western boundary of the WSA near the Union Pacific Railroad site of Hoya, two seven mile cherrystem roads lead to Davies Spring; there are numerous vehicle tracks adjacent to the western boundary; also, scattered throughout the area are a series of small game guzzlers.

In the Moapa Peak region impacts are: an access cherrystem road to the Whitmore Mine Area - the road starts along the southern boundary of the WSA (T.13S., R.67E., Sec. 4) and angles northeast six miles to the mine; the lower portion of this way leads into Hackberry Spring; and, there are vehicular tracks across much of the lower bench areas and washes.

The eastern bajada has a series of

short 1-2 mile cherrystem roads, probably associated with weekend mining or hunting access, along the eastern edge of the area (T.12S., R.69E., Sec. 12; T.12S., R.69E., Sec. 1; T.11S., R.69E., Sec. 25; and T.11S., R.69E., Sec. 24); and the Horse Spring cherrystem road starts at (T.11S., R.69E., Sec. 24 and terminates at (T.10S., R.68E., Sec. 21.)

The northern bajada has a long way starting at (T.9S., R.67E., Sec. 2), and running through the area, and into the core area terminating at an historic mine.

The Meadow Valley Wash which has some private inholdings with associated buildings lies along the western border of the WSA but the imprints are not significant. The boundary roads, as detailed under the physical environment discussion, are also outside human imprints. The entire WSA is frequently overflown by military aircraft in combat maneuvers at low altitudes, 50-200' at times, from Nellis Air Force Base.

In the Mormon Mountains core area, the Davies Spring Site, Horse Spring Site, and both mining sites affect only those areas adjacent to them because of topographic and vegetative screening; the three big game drinkers affect larger areas (probably several square miles) because of the lack of natural screening.

The west bajada already has a three section area removed due to mining activities, the cherrystem roads do not affect any additional area other than those adjacent to them.

The east bajada, with its short cherrystemmed roads, affects almost five square miles of area surrounding the boundary on that side of the WSA. The road into Horse Spring does impact the canyon or valley it lies in, with the corrals, water troughs, pipelines, and mining claim stakes. This area probably affects about ten square miles of the WSA. The northern bajada does not have an affected area. In summary, 50-60% of the WSA is unaffected by human imprints.

The mineral/energy sites would require grading, ripping, filling, and replanting to some extent. The ways and cherrystem roads would also require ripping and seeding. The corrals, water troughs, and pipeline in Horse Spring Valley could be removed. The overall limiting factor is the low annual precipitation (3-5 inches), which falls at the lower levels of the mountain where the majority of the imprints are, and would extremely hamper rehabilitation.

The western and eastern boundaries could be drawn inward (to the topographic relief line of the major upthrust of the Mormon Mountain) to exclude some of the mining and cherrystem roads. By doing this, a great amount of high wilderness values would be lost as well as supplemental values and public support. The core area could not be separated from the rest of the WSA without losing the integrity of the total WSA.

Conclusion

Due to the large size of the WSA, most of the area appears natural in part because a user cannot traverse enough of the area at one time to notice the imprints. The eastern bajada roads, mining areas, big and small game guzzlers, cherrystem roads, ways, fences, water troughs, and pipeline all substantially impair the naturalness of the WSA. The influence of the total may not be noticeable from great distances, but like the occasional military aircraft flights, they all have a negative influence on the overall experience of the Mormon Mountains.

B. Outstanding Opportunities for Solitude and Primitive and Unconfined Recreation

1. Solitude

The extreme size of the WSA increases

opportunities for solitude. The unit's configuration offers many opportunities for numerous areas of solitude. The desert shrub vegetation community found below the 5,000' elevation does not provide adequate vegetative screening for the lower portions of the WSA. The area above the 5,000' elevation consists primarily of mountain shrubs and pinyon/juniper stands which do offer good vegetative screening.

Topographic screening in the Mormon Mountain core area is outstanding throughout, including high cliffs, rugged peaks, deeply cut canyons, washes, and draws. There is limited topogoraphic screening provided by the washes and low rolling hills on the western bajada. Topographic screening in the Moapa Peak area is also outstanding with its 1,000' vertical cliffs, deep canyons, and rugged ridges. The east and north bajadas have limited screening potential as does the north bajada.

Most of the WSA is far removed from outside influences, however, military aircraft flights do destroy the stillness of the experience needed for solitude. Secluded spots are easily locatable in all areas of the WSA due to the sheer size of the WSA. The best areas are found in the core area.

2. Primitive and Unconfined Recreation

Dayhiking - Various dayhikes are available in conjunction with the cherry-stem access routes and others could be undertaken off the numerous peripheral roads adjacent to the WSA. The large majority of the study area offers challenging and scenic hiking opportunities. Winter, spring, and late fall are the best times for use of this area due to prevailing moderate temperatures then.

Specific destinations are several of the springs including Hackberry and Davies, from which hikes can go into interesting side canyons, rockshelters and caves. The summit of Mormon Mountain can be reached from Davies Spring or from the mining area on the west side. A summit route also exists up Toquop Wash from the east. Henrie Canyon is a remote, enclosed canyon of considerable attractiveness which makes a good route to caves and the central core.

The main mountain area offers beautiful big country views, fossils and bighorn sheep. Lower areas offer abundant cultural resources, particularly in the vicinity of springs.

Backpacking - The WSA lends itself to backpacking in spring or fall, but the lack of water may present a problem. Loop routes and through routes could be easily arranged and secluded camping sites are available. The scenic quality of the central escarpment makes for challenging and unique backpacking in a high desert environment.

Climbing and Scrambling - The central escarpment of the WSA is well known as a scrambling, hiking, and climbing area. Mormon Peak, Moapa Peak and other unnamed peaks within the range are all well known desert climbs with 500' to 1000' cliffs and offer an outstanding desert climbing experience.

Nature Study and Photography - The WSA is an outstanding example of an isolated high desert mountain range which lends itself to great photographic opportunities. The small stand of ponderosa pine near the summit of Mormon Peak offers the opportunity for good composition photographic shots of trees in a desert environment. The range is home to desert bighorn sheep and the opportunity for observation is rated high. Fossils are abundant in some areas and the plant community is of considerable botanical interest. Desert tortoise inhabit the southern bajadas.

Hunting - Opportunity for upland game birds is rated good, but all else is poor or closed to hunting.

Horseback Riding - The flanks of the Mormon Range offer limited horseback riding, but the interior of the unit is too rugged.

Spelunking/Caving - There are outstanding caving opportunities within the limestone peaks, walls, and canyons of the Mormon Mountains. Spectacular caves abound in the area and offer challenging opportunities to the user.

Conclusion

The WSA offers very good opportunities for most primitive recreation pursuits and the hiking, climbing, and backpacking activities are rated outstanding.

Component No. 2: Special Features: Quality of The WSA's Optional Wilderness Characteristics

Geological

The Mormon Mountains form a subcircular mountain mass termed the Mormon Mountain Arch. This arch is essentially a broad dissected dome of very ancient rock units which have been unroofed, the younger rock units having been removed by erosion through tributaries to the Colorado River. The oldest rocks in the Planning Unit are exposed here -- Precambrian crystalline igneous and metamorphic basement. These are some of the only Precambrian rocks for study in the Planning Unit -- they may be a Proterozoic series equivalent to the Vischnu Schist exposed deep within the Grand Canyon.

The predominate rock units in this study area are limestone and dolomite. Most of the caverns, vaults, overhangs, high cliffs and jutting peaks consist of limestone and dolomite. The carbonate units were thinly and sporadically deposited on Precambrian basement through time. This area was a positive region (often above the ancient sea level) region during much of the time (Paleozoic and early Mesozoic) when the thicker shallow marine and continental deposits were accumulating elsewhere throughout what is now the Great Basin and Colorado Pleateau.

Several thrust plates occur in this area, and usually are older rocks having moved over younger units - some are thought to be remnants of extensive gravity block slides. The structure of the Mormon Mountains is poorly understood due to lack of detailed knowledge concerning the stratigraphic succession and also due to the remoteness of the area.

Tourmalene, scheelite, idocrase (vesuvianite) and barite may exist in Precambrian units as these minerals have been found in similar rocks in the East Mormon Mountains. Vermiculite (expanded mica) exists near one of the old prospect areas in Precambrian rocks in the west portion of the WSA. An old gold prospect is located in Precambrian rocks south of the higher parts of the range. Gypsum nodules occur in the northern reach of the WSA near Meadow Valley Wash east of Carp.

Botanical

According to the most recent U.S. Fish and Wildlife Service Plant List there are no Federally listed threatened and/or endangered flora for the Mormon Mountains WSA. However the Meadow Valley Range Sandwort (Arenaria stenomeres) is presently protected by the State Statute (NRS 527.270) and according to the habitat descriptions, may occur within the boundaries of the Mormon Mountains WSA.

Zoological

The Desert Tortoise is State listed as "rare" in Nevada and classified by the Bureau of Land Management as a sensitive species. Tortoises are a common sight when they emerge from hibernation in the spring. Golden eagles (Federally protected), prairie falcons and other raptors (protected by the State) may pass through or exist in the area. The spotted bat

(classified "endangered" by the State) may exist in the Mormon Mountains WSA. Desert bighorn sheep are classified as sensitive by both the BLM and Nevada Department of Wildlife.

Cultural

This WSA is extremely rich in cultural expressions and the entire WSA is highly sensitive. A sample cultural resource inventory of the area has yielded over 2,000 prehistoric sites. Site types include: a high density of agave roasting pits, shelter caves, lithic scatters, pictograph and petroglyph sites, and open camp and milling sites adjacent to the many springs in the WSA. Along the western boundary of the unit, which parallels Meadow Valley Wash, other site types include major concentrations of rock art panels, rock alignments, shelter caves, pueblo-like features, and aboriginal trail segments. Historically, there are mining related sites, such as the Whitmore Mine. Other historic sites relating to the construction of the Union Pacific Railroad are located along the western boundary of the WSA in the Meadow Valley Wash.

Conclusion

Although none of the special features in the study area are of national significance, many that are present have importance to local and western regional publics.

Component No. 3: Multiple Resource Benefits: The Benefits to Other Multiple Resource Values and Uses Which Wilderness Designation of the Area Could Ensure

The general benefits to other multiple resource values and uses which wilderness designation of the area could ensure are as delineated in the Preface.

Specific benefits will accrue through continued habitat protection for bighorn sheep which are an important resource in this WSA. Control of ORV use would benefit desert tortoise which occupy considerable portions of the southern and southwestern bajadas of this WSA.

Component No. 4: Diversity in the National Wilderness Preservation System

The diversity component is discussed at length in the Preface.

Criterion No. 2: Manageability

Motorized Access Problem Areas: There are several major washes aside from the cherrystem roads, which allow access into the area. One could not stop the access by the washes, but the roads could be ripped and trenched. This would only serve as a temporary limiting action and control would be difficult. The terrain of the periphery makes it accessible to vehicles. There are numerous tracks throughout the southwestern and southern areas, and control would be very difficult at best. The majority of the area does not have any problems from vehicles due to its very precipitous terrain. The portion exhibiting problems is associated with the southern boundary of the WSA and again control would be difficult. The entire WSA is composed of public land, with no encumberances of record. There were some range developments noted on the MTP. The WSA is bordered on the west side by Union Pacific Railroad (200' wide, CC-06192) and WSA 0156. Currently, there are no utility corridors planned for the WSA. The entire WSA is currently under lease or application for lease, by post-FLPMA leases. There are no known oil or gas occurrences in or near this WSA. An episode of seismic exploration took place in the southwest part of this WSA. There is no known history of other geophysical exploration work in or near this WSA. A deep test well was put down a few miles west of Meadow Valley Wash near Rox in neighboring WSA No. 156 with no known results. Approximately 11,500 acres (or 7.1 percent of the WSA) are

covered by post-FLPMA mining claims. Only two pre-FLPMA lode mining claims exist (41.3 acres, part of which is a cherrystem). Other claims have been located but are presently abandoned. Historic mining or production is unknown.

Conclusion

The only possible management problem affecting the unit would be vehicle access problems on some of the bajada areas, the southwestern and portions of the northeastern and eastern bajadas, specifically. Some management difficulty will also occur in the valley area southeasterly of Whitmore mine, towards Moapa Peak and the East Mormon Mountains.

QUALITY STANDARDS

Standard No. 1: Energy and Mineral Resource Values

Economic or subeconomic locatable resource values are not known to exist within this WSA. Hypothetical undiscovered resources of gypsum in unknown amounts are located in an identified area east of Carp. The inferred hypothetical gypsum prospect is less significant than several other gypsum prospects in the Caliente Planning Unit. Other gypsum resources are produced in the State that are much closer to a market. The small area, surrounding the abandoned Whitmore Mine, could be identified as a locality with inferred, hypothetical resources of metallic minerals based on a reported occurrence of small unknown amounts of copper in the presumed old prospect for gold. Copper is a strategic material, but it is not known whether the reported occurrence of copper could be considered a suitable copper mineral source of strategic or critical stockpile character. Undiscovered manganese, zinc, and tungsten (strategic listed minerals) may occur within this WSA, since these minerals occur in similar areas in the range immediately to the east.

Indications that locatable resources may exist in the central and northeastern core of this WSA come from discoveries of mineralized areas in similar rock types in other ranges within the Planning Unit and elsewhere in the State. The area identified as potentially containing undiscovered speculative resources has the lowest degree of geologic assurance and economic feasibility other than no known potential.

Saleable sand, gravel and other common variety mineral values exist around the periphery of this WSA and in numerous localities within. The saleable mineral potential is insignificant within this WSA, the Planning Unit, and the State as sufficient quantities of suitable quality mineral material are located along most all roads, highways, and railways. Additionally, building stone materials that exist within this WSA are far from any potential or existing market.

No known leasable mineral values exist in this WSA. No documented occurrences of oil, gas, or geothermal resources are known, although, the entire WSA is under oil and gas leases and some seismic exploration work was conducted.

Conclusion

A potential conflict may occur in a small area surrounding the abandoned Whitmore Mine. This is reduced by the fact that this mine is cherrystemmed. The oil, gas, and geothermal potential should be more fully evaluated with input from industry and the USGS. Existing and abandoned workings or claims could be investigated for site specific information along with any information provided by individuals or claimants.

Standard No. 2: Impacts on Other Resources

A. Recreation

The Mormon Mountains WSA is primarily known as a hiking-climbing area offering good recreational opportunities for the Las Vegas metropolitan population. Recreation mangement plans have been recommended for the Mormon Peak Caves, but current thinking is more attuned to treating this from a cultural resource management perspective. Frequent ORV use occurs on some flanks of the study unit. ORV designations have not yet been determined. as yet. The current accessible ORV use patterns would be foregone with designation. Hunting from vehicles, trapping, and recreational prospecting could be reduced.

B. Range

The Mormon Mountains WSA contains seven different grazing allotments. The ways and roads penetrating into the area are cherrystemmed thus, little effect would occur as existing improvements could be maintained. New proproposals would have to meet Wilderness Management Policy Guidelines which require that new improvements be primarily for the purpose of resource protection and the more effective management of these resources rather than to accommodate increased numbers of livestock. Both planning and analysis would have to accompany range projects.

C. Wildlife

Some latitude in implementing the Mormon Mountains HMP will be proscribed. Greater levels of planning and analysis will be necessary to accomplish this effectively. Control of ORV usage will benefit desert tortoise in particular.

D. Cultural Resources

A cultural resources study was recently completed for this WSA and identifing a diverse and rich array of sites. On one hand, further culturalresource surveys, excavations and stabilization efforts will be hampered or thwarted. On the other hand, the blocking of motorized access to the WSA will reduce opportunities for looting and vandalism; thus, on balance, a beneficial result will accrue to the resource.

E. Energy and Minerals

The exploration for and production of energy resources could be hampered due to a lack of qualified data, although the entire area is leased, it is difficult to ascertain whether a legitimate impact exists or not.

Mining claims have been located within and on the fringes of the WSA but the lack of qualified data makes the value of this area for this purpose speculative.

In conclusion, wilderness designation would have a degree of impact on potential energy and minerals resources, but, based on present knowledge, not a significant one.

Conclusion

No adverse impacts of significance are likely to occur with designation of this area. Beneficial impacts will occur to most wildlife, recreation, and cultural resources. Some minor impacts to energy and mineral exploration may occur.

Standard No. 3: Impacts of Nondesignation on Wilderness Values

Nondesignation of the Mormon Mountains WSA will forego the inclusion of ecosystems underrepresented in the National Wilderness Preservation System, and will forego enlargement of protected opportunities for primitive recreation for the adjacent Las Vegas SMSA.

Loss of wilderness values on the southwestern bajadas will probably occur

quite rapidly. Because of the extremely rugged terrain in the core, much of it will remain physically untrammeled, but incursions from deeply penetrating ways will depreciate wilderness values substantially through outside influences. Mining exploration and helicopter installation of communication facilities are other likely sources of intrusions. Uninhibited range and wildlife projects are also likely and will cause erosion of wilderness values. Slower losses of wilderness values will occur on the other bajada areas due to ORV recreation use, mining exploration and possible seismic data gathering.

Standard No. 4: Public Comment

During the inventory phase, quite a bit of negative wilderness comment was received from various mining and oil and gas exploration corporations expressing opinions that the area did not qualify for further study. Other comments were received indicating the Mormon Mountains Area was a unique area and with significant wilderness characteristics.

During issue identification and scoping, commenting was light. Two organizations objected to the manner and character of the big game guzzler installation. Another maintained that the area is not roadless, contains nothing unique, and has undeveloped mineral potential. The State Division of Water Planning noted that the area is partially or wholly within a designated ground-water basin.

Standard No. 5: Local Social and Economic Effects

There will be no significant impacts - positive or negative - to the Lincoln County Area. Impacts on Clark County are somewhat ambiguous due to the unknown thrust of current oil and gas thinking, and whether formal designation would lead to further primitive recreational activities positively affecting the local economies of Moapa and Glendale, Nevada.

Standard No. 6: Consistency With Other Plans

No other plans are currently in effect or are contemplated for the Mormon Mountains WSA.

SOUTH PAHROC RANGE NV-050-0132

SOUTH PAHROC RANGE NV-050-0132

The South Pahroc Range WSA contains the southern end of the Pahroc Mountain Range, a north-south escarpment, located in central Lincoln County, Nevada, approximately 120 road miles northeast of Las Vegas, Nevada.

WSA configuration is roughly elliptical in shape - two to four miles east to west and seven miles north to south. It is bound by the Buckhorn Road on the south, a powerline right-of-way on the north, the Eight-Mile Spring and the Six-Mile Spring roads to the west, and by the Pahroc Springs Road along the east side.

The area consists of ridges, saddles, deep cut canyons, drainages, rock fields, and steep cliffs culminating in a high plateau environment of pinyon pine, juniper and scattered white fir stands. Elevations range from 4,900 to 7,950 feet. Access to the north end of the WSA is achieved via Highway 93 from Las Vegas. The western and eastern flanks of the WSA are easily accessible by good quality dirt roads running southward from Highway 93 on either side of the WSA boundary. Due to the abrupt rise from the valley floor, no cherrystem invade the boundaries. Vehicle shuttles could be easily arranged for various loops or through routes.

Criterion No. 1: Evaluation of Wilderness Values

Component No. 1: Quality of the Area's Mandatory Wilderness Characteristics

A. Naturalness

In the South Pahroc core area, a one mile way protrudes into the unit from the north end (T.4S., R.62E., Sec. 28). An old pipeline running from the Eight-Mile Springs site (T.5S., R.62E., Sec. 32) extends along the west border for several miles heading south and eventually terminating at the stock tank. The remainder of the region appears natural. In the escarpment region, on the northeast end of the unit, a grandfathered mining operation (T.4S., R.62 E., Sec. 34) is located just outside the WSA, but claims have been established inside the area. Currently, there has been no activity within the WSA associated with this operation.

The Mackie perlite mine is located outside the northeast boundary of the WSA at T.4S., R.62E., Sec. 28. The mine consists of open pit and tunneling operations. The northern boundary of the WSA is associated with a powerline (N-12182, 40 feet wide), while the northwest side has a pipeline (range development #4420), which extends north from the Six-Mile Spring development (three stock tanks and a fenced corral). Along the west side, Eight-Mile Spring development consists of a pipeline, corral, stock tank, and an earthen reservoir. Another development is the Twain Springs pipeline and associated stock watering tanks and reservoir at T.5 S., R.62E., Sec. 34. The remaining impacts consist of a large range seeding, fenced pasture, and associated corral located along the eastern portion of T.5S., R.62E. The entire WSA is frequently overflown by military training flights associated with Nellis Air Force Base. It is not uncommon to see low level (50'-200') manuevers either over the WSA or closely adjacent to the borders.

In the South Pahroc core area, the way, pipelines, spring developments, powerline, and fences affect only those areas immediately adjacent due to topographic and vegetative screening. The mine and range pasture seeding areas do have a greater affect on the northeast end if a user is viewing toward that direction from the top of the escarpment. From a lower elevation these impacts only affect the adjacent area.

Outside influences affect only the

adjacent areas. Approximately 95 percent of the WSA is unaffected by human imprints. No rehabilitation would be required because the mineral site is not located within the WSA. However, with the pre-FLPMA, grandfathered use, the potential for future impacts is possible. The pipelines could be removed, but they appear to be substantially unnoticeable and would not require any rehabilitation. The existing way on the north end of the unit could be ripped and seeded. The boundaries of the WSA are manageable and do not need to be changed to exclude the affected areas. The area's high wilderness values are protected at this time and no further alterations are needed.

Conclusion

Within the WSA, all of the area appears natural and wild. The influence of outside imprints in the form of boundary roads, powerlines, fences, mines, and pastures is minor and they are not visible from any distance. The single exception lies with the tremendous viewshed and distant evidence of man one achieves when standing atop the escarpment. This exception is somewhat diminished from the superior positioning one has and the overall sense of aloneness.

B. Outstanding Opportunities for Solitude and Primitive and Unconfined Recreation

1. Solitude

Several factors contribute to the solitude in this WSA: size, drainage characteristics, unusual weathering patterns, vegetation, and relative isolation. The large size of the WSA increases opportunities for solitude. The American Desert/Great Basin Pine Forest offers moderate to adequate vegetative screening throughout the entire WSA.

Topographic screening in the South Pahrocs core area is outstanding throughout, including cliffs, hills, ridges, saddles, deep cut canyons, washes, drainages, and the large boulder fields prevalent throughout the entire area. The escarpment also provides excellent topographic screening to the west, north, and south, while to the east, the terrain falls off too quickly to offer any adequate screening potential.

The majority of the WSA is remote from outside influences, however, military aircraft tend to destroy the wilderness experience, or the stillness that is a contributing factor to a feeling of aloneness. Secluded spots are easily locatable in all areas of the WSA with the exception of the east side of the escarpment. The overall ruggedness, many canyons, expansive boulder fields, and lack of focal points will aid in the dispersal of users. This area gives a strong sense of being wild and remote.

2. Primitive and Unconfined Recreation

Dayhiking - The entire WSA offers fantastic hiking opportunities. Day hikes are feasible but limited to the flank areas of the WSA due to the extreme ruggedness of the area. Twin Springs, accessible by road on the east flank, offers the best starting point for day trips to the high points of the eastern escarpment.

Backpacking - This WSA offers the best backpacking challenge in the Caliente Resource Area. Trips could traverse the length of the range or any portion cutting across it. Much of the area is little used or explored. Access from the west is gained via numerous canyons and draws climbing to the high plateau-meadow type environment of white fir adjacent on the eastern ridge line. Opportunities for secluded camping are endless. The entire WSA is remote, rugged, and offers backpacking challenges to any backpacker whether novice or expert.

Climbing and Scrambling - Climbing and scrambling opportunities of varying

degrees of difficulty and exertion are available everywhere throughout the WSA.

Nature Study and Photography - The natural seclusion and ruggedness of the WSA make it an outstanding area for animal observation. The possibility of sighting the elusive mountain lion is within reason. Photographic selection and context are unlimited in the WSA. Unique rounded rocks, columns, stone faces, balancing rocks and rocks which look like stacked bagels all offer interesting subjects for study and photography.

Hunting - Known bird hunting occurs on the flanks of the WSA. Other types of hunting within the heart of the WSA are an unknown quantity due to the rough terrain.

Horseback Riding - There are horseback riding opportunities in the southern end of the WSA and the western flank, otherwise, the WSA is too steep and rocky.

Conclusion

The "island in the sky" sort of effect the WSA offers makes it an unique WSA for experiencing all types of outstanding primitive recreational pursuits. So little is known about the heart of the study area that any type of primitive recreation experience would undoubtedly prove to be fresh and new.

Component No. 2: Special Features: Quality of the WSA's Optional Wilderness Characteristics

Geological

The South Pahroc Range is a tilted block of gently west-dipping layers of volcanic ash and debris. These layers (commonly called tuff) exhibit unusual weathering patterns; pockets and holes caused by differential weathering of the less resistant portions within alternating layers of buried soil horizons, air-fall ash tuff, water-laid ash, and mostly ash-flow (welded) tuff. The bold, steeply eroded and cliff-faced escarpment along the eastern flank is bound by the arcuate Pahroc fault.

The volcanic sequence is a studied section of various volcanic ash and debris outpourings from unknown volcanic sources in the region -- hot ash flow surge and subsequent fusing or welding of ash and debris constituents as opposed to lesser air-fall tuffs of atmospheric volcanic ash cloud origin. The predominating cooling unit is a massive vitric-crystal tuff (looks uniform with included pumice debris and crystals in a background of minute volcanic glass shards). Some feldspar crystals are opalescent and may be of interest to specimen collectors. Abundant spheroidally weathered boulders (which weathered to rounded shapes prior to exposure) are unique to this rock unit, which at first glance obviously appears to be granite. The major cliff-forming unit is a brown-stained, gray rhyolitic (granitic composition) flow. An east-west trending, vertical joint system combined with differential erosion creates the extreme ruggedness along the ridgeline.

An extensive rock unit of moderating thickness occurs along the base of the range and is composed of white, pink and orange air-fall and water-laid ash. The unit contains layers of partially devitrified (decomposing) fractured volcanic glass qualifying as perlite and contains pellets of obsidian commonly termed "apache tears." The perlite at the northeast WSA boundary is presently mined--several million tons of reserves are present in or near the WSA boundary.

Botanical

According to the most recent USFW list, there are no Federally listed threatened or endangered plant species in the vicinity of the South Pahroc WSA. The Caliente Resource Area MFP identifies the presence of scattered stands of white fir on the South Pahroc

Range. Although white fir is found in several areas of Nevada it is uncommon in Lincoln County. MFP Step 3 recommends development of a fire protection plan to benefit white fir propagation.

Zoological

The area supports a small population of mule deer. Prairie falcons, golden eagles and other raptors (protected by the State) may also pass through the area. The spotted bat (classified "endangered" by the State) may exist in the South Pahroc Range.

Cultural

Although only eight prehistoric sites have been researched for this WSA, the area must be considered as archaeologically sensitive. Components of the known sites include open lithic scatters, rock shelters, temporary camp sites and milling sites. In addition, several springs exist within or on the boundary of the WSA and should be considered as being highly sensitive for cultural resource occurrences.

Conclusion

Although none of the special features in the study area are of national significance, many that are present have importance to local and non-local publics and constitute a relatively unique resource in this region.

Component No. 3: Multiple Resource Benefits: The Benefits to Other Multiple Resource Values and Uses Which Wilderness Designation of the Area Could Ensure

The benfits to other multiple resource values and uses which wilderness designation of the area could ensure are as delineated in the Preface.

Component No. 4: Diversity in the National Wilderness Preservation System

The diversity component is discussed in the Preface.

Criterion No. 2 - Manageability

Motorized Access Problem Areas: There are no known access problems present in the WSA. The terrain forms an effective natural barrier and the area is defacto wilderness at this time. The entire WSA is composed of public land, with no encumbrances of record. The WSA is bordered on the north by powerline (40' wide, N-12182) and on the northwest by a pipeline (range development #4220). There are no existing or presently planned utility corridors associated with the WSA. There are no oil and gas leases present within the WSA except for some on the very western edge. Approximately 160 acres (or 1/2 percent of the WSA) are covered by grandfathered, pre-FLPMA placer mining claims located in the 1940's in an active mining area termed the Delamar perlite, kopenlite perlite, Mackie perlite or paramount perlite. No known historic mining or production has occurred within this WSA. Most of this mining adjacent to the boundary is underground, though some surface workings exist. Extension of this activity under the "same manner and degree" precept may affect a small adjacent area of the WSA. Effects are limited though, because the terrain rapidly steepens toward the WSA, thus physically limiting surface activities.

Conclusion

No management problems affecting the unit are present or likely; thus, long term management for wilderness could be assured except, possibly, for the small area adjacent to the perlite mine.

QUALITY STANDARDS

Standard No. 1: Energy and Mineral Resource Values

No strategic and/or critical mineral resources are known to occur in or near this WSA. Only one portion of

this WSA has known potential for valuable non-energy minerals. The northeastern edge of the WSA is located in an identified area with demonstrated economic reserves of perlite. Inferred economic reserves are probably in the amount of several million tons. Hypothetical undiscovered perlite resources are probably locally extensive, laterally within the range from the exposed deposits. Other perlite resources are known to occur in other areas of the Planning Unit and State outside of this WSA. Perlite is produced in other parts of the State. Other undiscovered mineral resources may exist within the WSA. This potential is at best described as speculative, a level of classification that has the lowest degree of assurance or significance other than no potential, and is largely based on insufficient data.

No known leasable mineral values exist in this WSA. No documented occurrences of oil, gas, or geothermal resources are known.

Conclusion

No major conflicts are foreseen and no strategic minerals are known to occur in this WSA. The oil, gas, and geothermal potential should be more fully evaluated with input from industry and the USGS.

Standard No. 2: Impacts on Other Resources

A. Recreation

Little in the way of recreational activity has been identified in the unit. No recreation management plans are contemplated. ORV use has been limited to the flanks and none could be accommodated within the WSA due to the steepness and rocky nature of the escarpment. ORV designations have not been determined. Some hunting and trapping probably occur around the edges of the unit. Because there is no road or way access within the unit, horseback travel is extremely limited and foot travel is strenuous. There is little activity that would be affected.

B. Range

This WSA contains portions of two grazing allotments. No new range improvements have been identified through CRMP that would affect the WSA, and current range activities are not affected by designation.

C. Wildlife

This WSA contains approximately 20,000 acres of mule deer winter range and even though no habitat management plans are currently anticipated, vegetation conversions to improve habitat may not be permitted.

D. Cultural

Some cultural resource excavations and stabilization efforts will be precluded or hampered.

E. Energy and Minerals

It is difficult to assess whether a legitimate impact exists for the exploration for, and production of energy resources due to a lack of qualified data. The lack of even oil and gas leases seemingly indicates the total lack of potential in this unit.

Conclusion

No impacts of significance are likely to occur with designation of this area. Some minor impacts to mineral exploration may occur.

Standard No. 3: Impacts of Nondesignation on Wilderness Values

Nondesignation of the South Pahroc Range WSA would forego the inclusion of ecosystems underrepresented in the National Wilderness Preservation System, and will forego enlargement of protected opportunities for primitive recreation for the Las Vegas SMSA.

Because of the area's forbidding terrain and lack of competing resource values, little effect on wilderness values is likely due to nondesignation. Placement of communication facilities on the ridgeline by the Air Force could be a minor effect. Some mining exploration for perlite north and northwest of the existing mine could cause a loss of wilderness values along that portion of the the WSA bounbdary.

Standard No. 4: Public Comment

Little public comment has been received on the area. What comment there has been, reflected opposition to all wilderness in general. Ranchers objected to the South Pahroc area until they understood grazing was "grandfathered" and designation would not adversely affect their operations. Comments during study phase open houses and written response stages were minimal. The owner of the perlite mine was interested in whether the alternatives affected his claims. Another person advised that the northwest corner should be scrutinized because of placer claims there. Analysis of the remainder of the tuffaceous unit due to sub-surface perlite potential was also advised. The Nevada Division of Forestry noted this unit as the "only area that is not heavily effected (sic) by grazing allotments, mineral lease, or roadways."

Standard No. 5: Local Social and Economic Effects

There will be no significant impacts, either beneficial or negative, to the Lincoln County area from any action taken on the South Pahroc area.

Standard No. 6: Consistency With Other Plans

No other plans are currently in effect, or are contemplated for the South Pahroc area.

REFERENCES

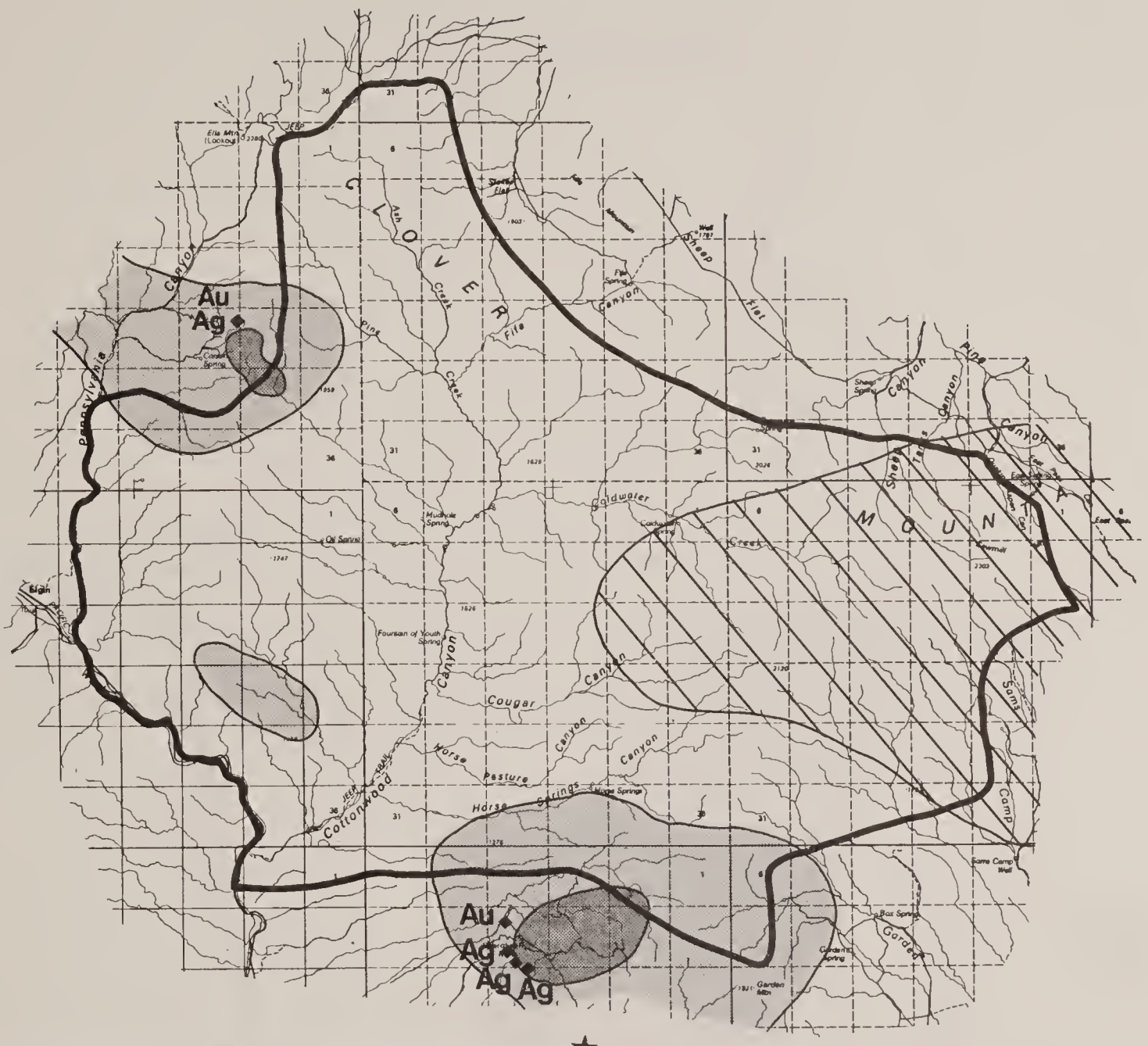
REFERENCES

Great Basin Joint Ventures, 1983. Geology-Energy-Minerals Technical Reports. Great Basin GEM Joint Venture, April, 1983.

HDR Sciences, 1980. MX Environmental Technical Report prepared for U.S. Air Force Ballistic Missile Office, Norton AFB, CA.

Fugro National, 1981. MX Mineral Resources Survey, Nevada/Utah Siting Areas. 11 Vols. Fugro National, Inc.

MAPS



0 1 2 3 4 5
approximate miles

ECONOMIC POTENTIAL (McKelvey Classification) ★

- SUBECONOMIC RESOURCES
- UNDISCOVERED HYPOTHETICAL RESOURCES
- UNDISCOVERED SPECULATIVE RESOURCES

PROSPECTS (◆ marks location)

Ag = SILVER

Au = GOLD

*REFER TO TEXT FOR EXPLANATION

SOURCE: Management Framework Plan MFP, Step 3 (Minerals Overlay)

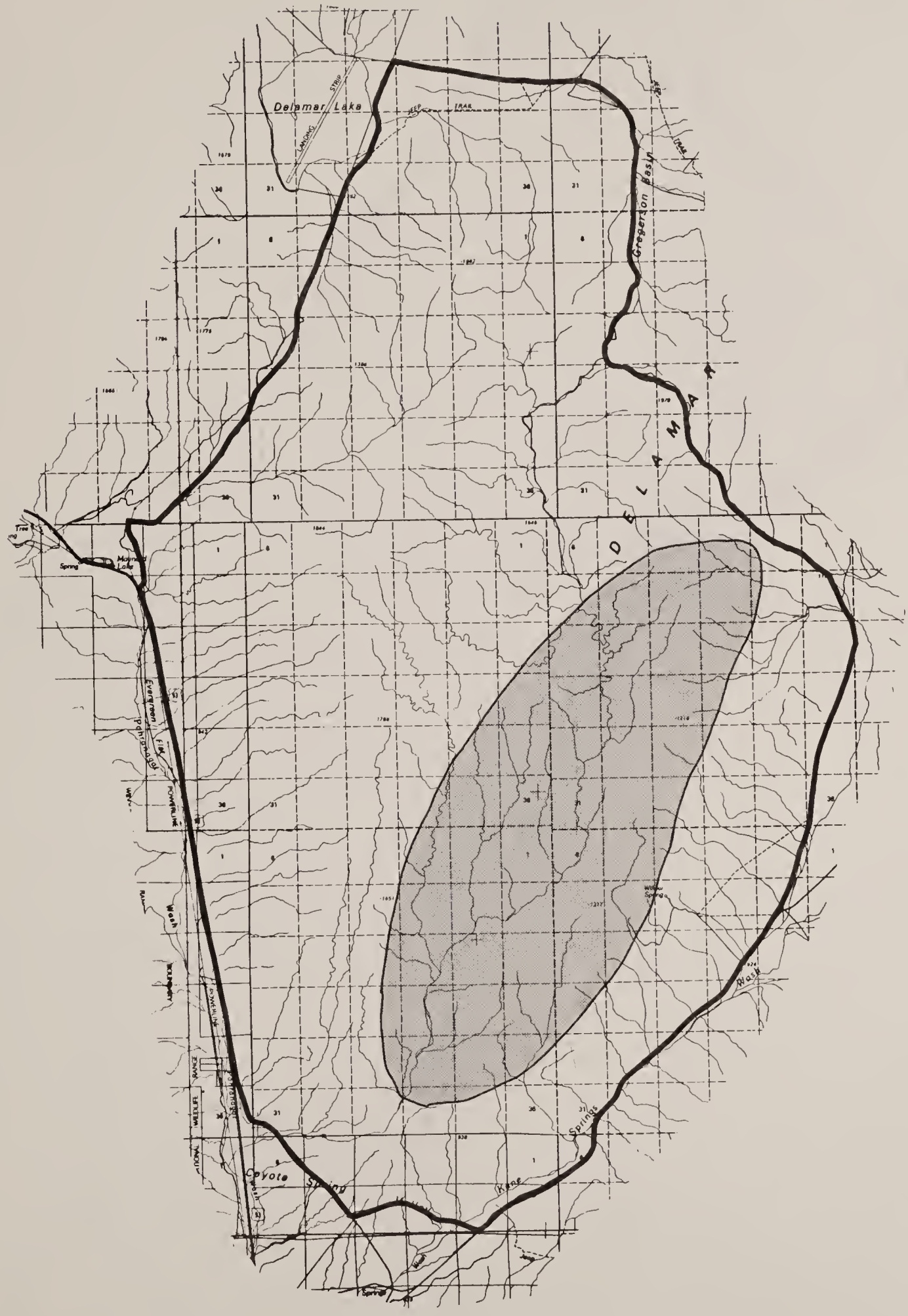
ECONOMIC MINERAL RESOURCES
CLOVER MTNS. NV-050-0139

ECONOMIC POTENTIAL (McKelvey Classification) *

UNDISCOVERED SPECULATIVE RESOURCES

N

0 1 2 3 4 5
approximate miles



*REFER TO TEXT FOR EXPLANATION

SOURCE: Management Framework Plan MFP, Step 3 (Minerals Overlay)

ECONOMIC MINERAL RESOURCES
DELAMAR MTNS. NV-050-0177

ECONOMIC POTENTIAL (McKelvey Classification)*

UNDISCOVERED HYPOTHETICAL RESOURCES

PROSPECTS (◆ marks location)

Per = PERLITE

Gyp = GYPSUM

*REFER TO TEXT FOR EXPLANATION

SOURCE: Management Framework Plan MFP, Step 3 (Minerals Overlay)

ECONOMIC MINERAL RESOURCES

MEADOW VALLEY RANGE NV-050-0156

ECONOMIC POTENTIAL (McKelvey Classification)*

SUBECONOMIC RESOURCES

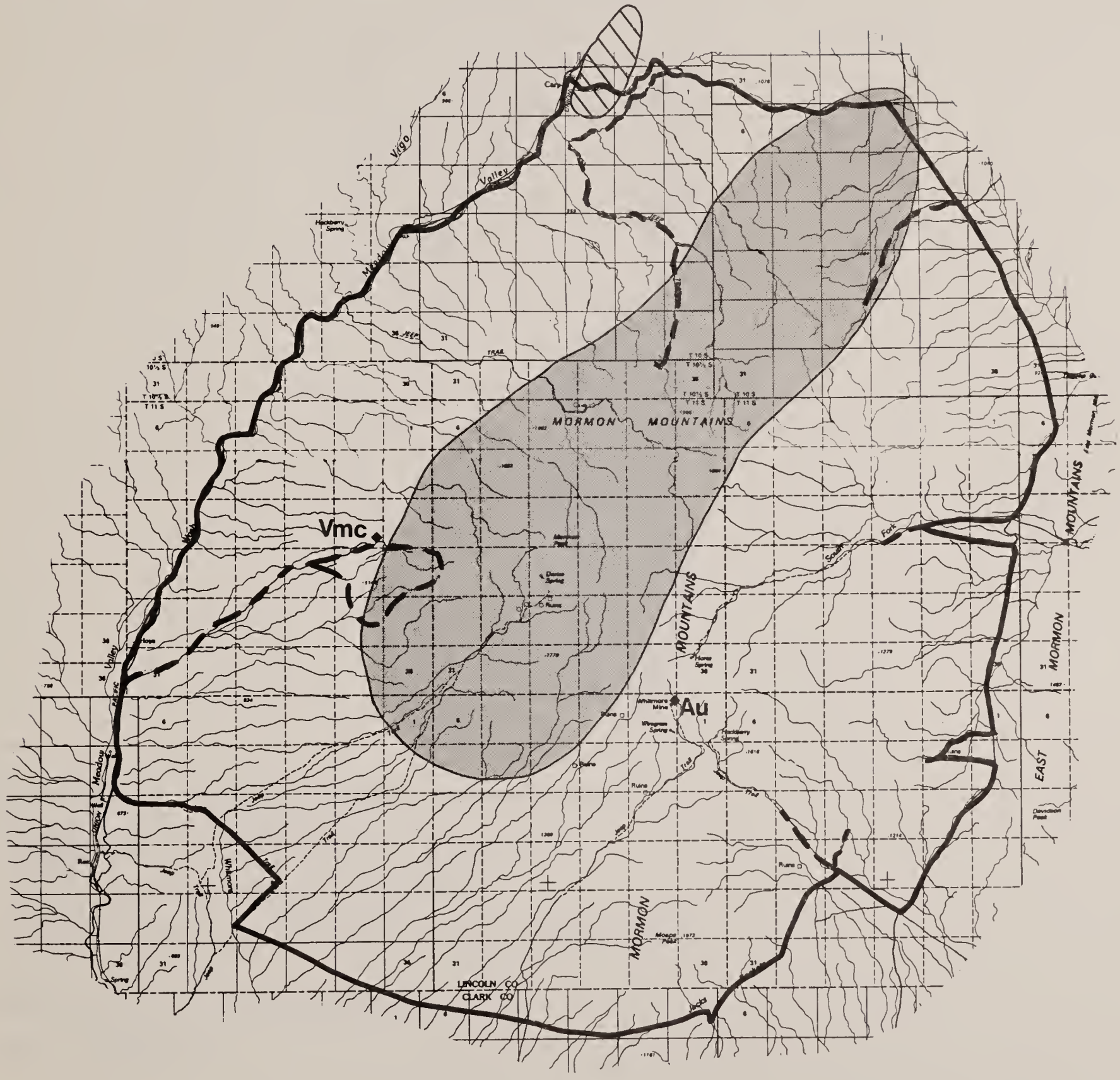
UNDISCOVERED SPECULATIVE RESOURCES

0 1 2 3 4 5
approximate miles

PROSPECTS (◆ marks location)

Vmc = VERMICULITE

Au = GOLD



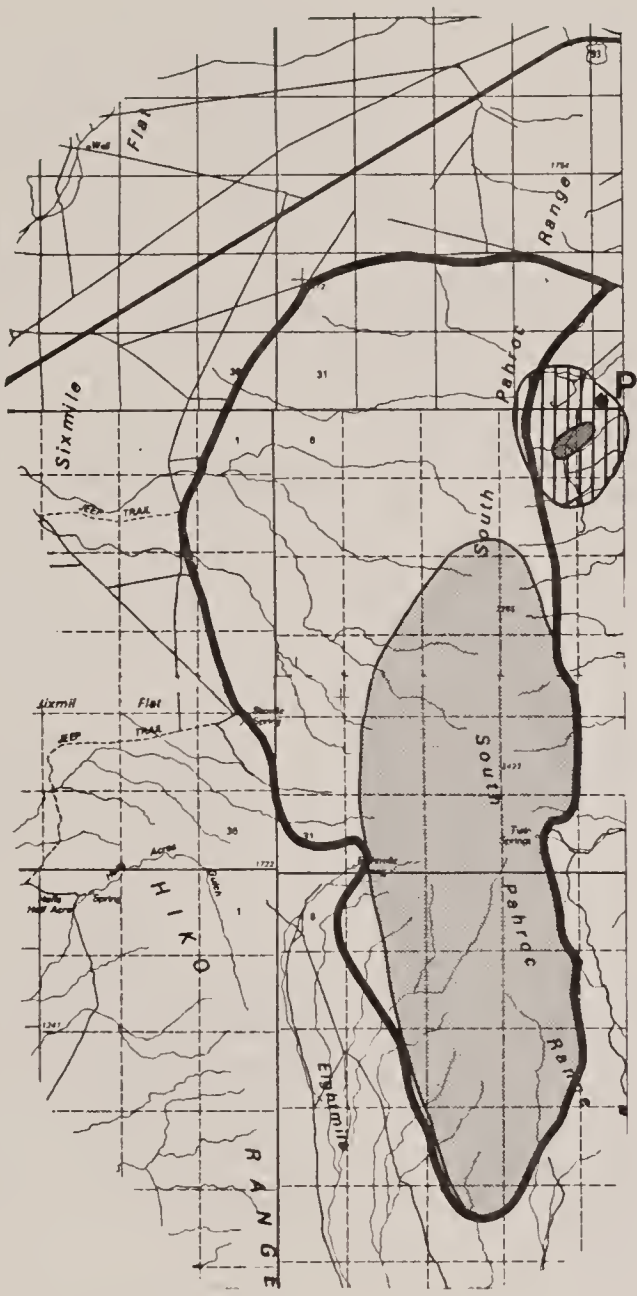
*REFER TO TEXT FOR EXPLANATION

SOURCE: Management Framework Plan MFP, Step 3 (Minerals Overlay)

ECONOMIC MINERAL RESOURCES
MORMON MTNS. NV-050-0161

N

0 1 2 3 4 5
approximate miles



ECONOMIC POTENTIAL (McKelvey Classification)*

- IDENTIFIED ECONOMIC RESERVES
- SUBECONOMIC RESOURCES
- UNDISCOVERED SPECULATIVE RESOURCES

PROSPECTS (◆ marks location)

Per = PERLITE

*REFER TO TEXT FOR EXPLANATION

SOURCE: Management Framework Plan MFP, Step 3 (Minerals Overlay)

ECONOMIC MINERAL RESOURCES
SOUTH PAHROC RANGE NV-050-0132

N

0 1 2 3 4 5
approximate miles

EXISTING PROJECTS

- Cattle Guard
- Fences
- Pipe Lines
- Corrals
- Water Trough
- Improved Spring

PROPOSED PROJECTS

- Fences
- Trough
- Pipe Lines

RANGE IMPROVEMENTS

CLOVER MTNS. NV-050-0139

N

0 1 2 3 4 5
approximate miles

BUCKHORN

LOWER LAKE EAST

DELAMAR

GRAPEVINE

BREEDLOVE

Delamar Lake

Coyote Spring

EXISTING PROJECTS

- Cattle Guard
- Fences
- Pipe Lines
- Corrals
- Water Trough
- Improved Spring
- Reservoir
- Tank

PROPOSED PROJECTS

- Reservoir or Well
- Cattle Guard
- Fences

RANGE IMPROVEMENTS

DELAMAR MTNS. NV-050-0177

RANGE IMPROVEMENTS

MEADOW VALLEY RANGE NV-050-0156

EXISTING PROJECTS

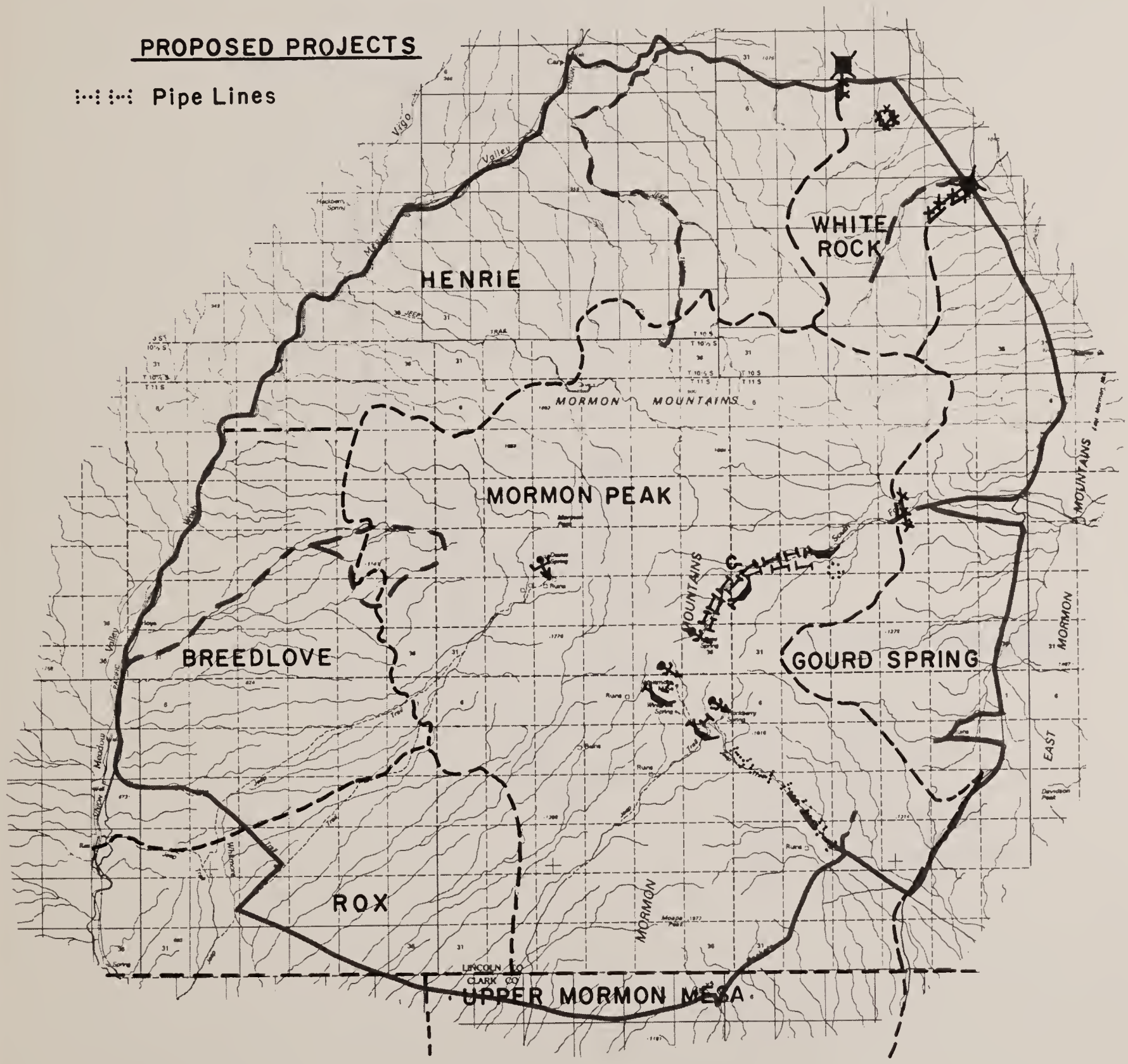
- Cattle Guard
- Fences
- Pipe Lines
- Corrals
- Water Trough
- Improved Spring

PROPOSED PROJECTS

- Pipe Lines

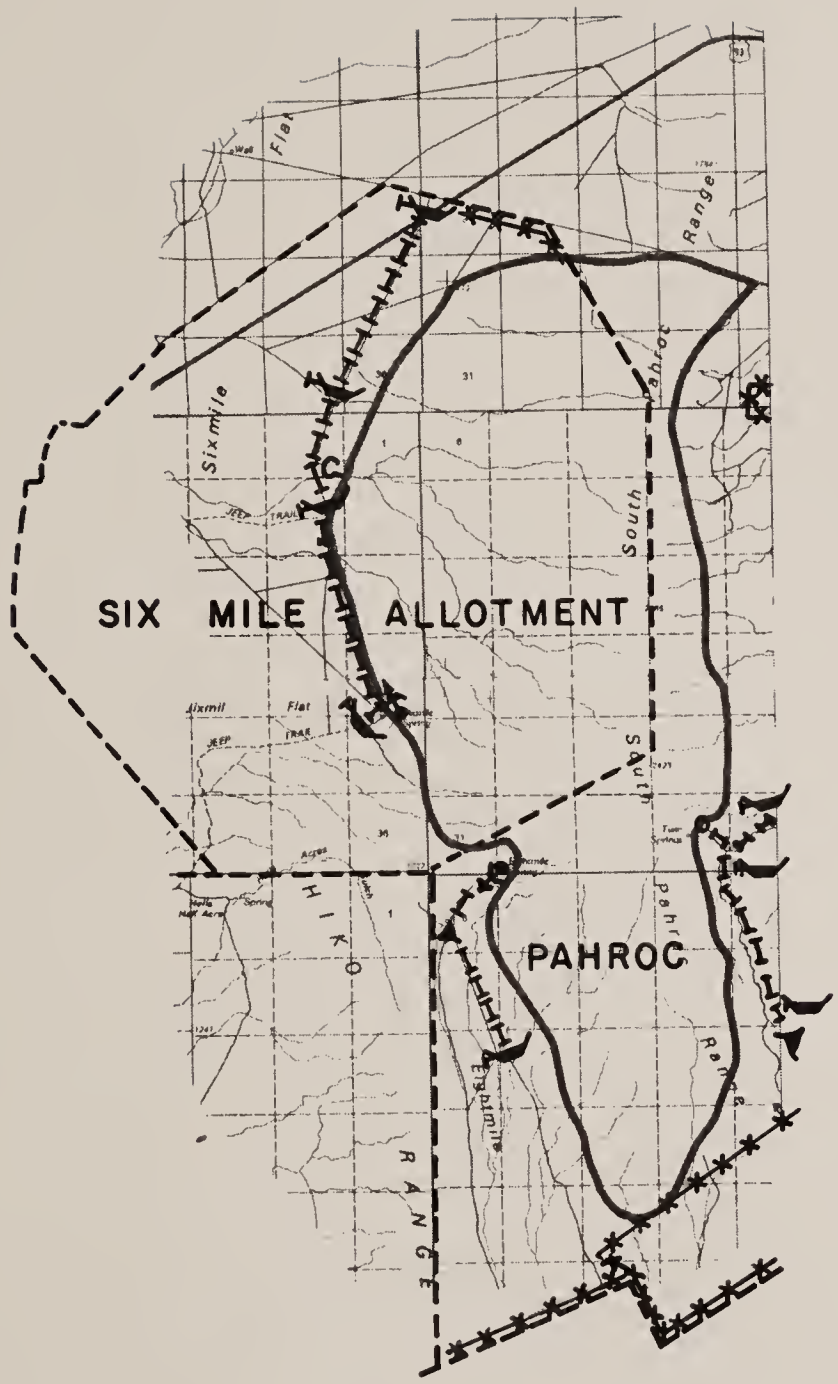
N

0 1 2 3 4 5
approximate miles



RANGE IMPROVEMENTS

MORMON MTNS. NV-050-0161



0 1 2 3 4 5

approximate miles

EXISTING PROJECTS

- Fences
- Pipe Lines
- Corrals
- Water Trough
- Improved Spring
- Reservoir

RANGE IMPROVEMENTS

SOUTH PAHROC NV-050-0132

APPENDIX A

ENERGY AND MINERAL RESOURCES

Determination of Potential

Determination of energy or mineral resource potential for each of the five WSA's involved evaluation of existing and newly acquired data. The existing BLM mineral resource inventory for the Caliente Planning Unit was supplemented with Geology-Energy-Mineral (GEM) Resource Assessment Reports for each WSA. The two assessments utilized published geologic and mineral information. The existing literature is somewhat limited both in quantity and detail for purposes of determining energy and mineral potential in these WSAs--this is largely due to the area's remoteness and possibly due to a previous lack of interesting mineral potential. The known data was supplemented with limited field-checking and information from unpublished casefiles and other records. Individuals and companies with inholdings were also solicited for their input. Additionally, newly acquired geochemical data was collected and is currently being analyzed and interpreted by the USGS for each WSA. A variety of schemes to classify mineral potential were used. The actual classification of mineral potential used in this analysis is discussed later. The geology, energy, and mineral resources and the classification of potential for each WSA is discussed in more detail in the Wilderness Technical Report. As new data becomes available from public input regarding areas of critical mineral potential or other industry or individual data contributions, the classification or confidence level of an area may change. A mineral survey will be conducted by the U.S. Geological Survey/Bureau of Mines for any of the areas that the BLM Director recommends as suitable for wilderness designation. This will bolster the existing data.

Classification of Mineral Potential

The McKelvey system for the classification of mineral potential has traditionally been used in the mineral resource inventory portion of the Bureau Planning Process. This system compares the economic and geologic feasibility of a deposit based on known or inferred relationships. The system relies heavily on known occurrences and does not have an adequate breakdown for undiscovered, but inferred deposits. It does not consider the relative importance of the potential of a particular type of commodity in contrast to those commodities of lesser or greater importance. The ranking scheme adopted for BLM GEM Resource Assessment compares the favorability for occurrence based on various degrees of known or inferred relations and is further qualified (or unqualified) by the level of confidence of the data used in the favorability classification. The GEM system also does not consider the relative importance of the potential of a particular type of commodity in contrast to those commodities of lesser or greater importance. This ranking system tends to rate inferred occurrences highly -- regardless of economic, practical, or legal considerations. The classification system used in this EIS analysis involves relative ranking of commodity groups by method of legal acquisition and is based on the potential importance of a possible new deposit as a function of modern usage and domestic scarcity (see Table 1).

Mineral Potential

The mineral commodity groups are defined and ranked in descending order of significance in Table 1, with mineral types in Group 1 having a greater significance than the lower classes. The classification of a mineral potential (Table 2) is a

function of these mineral groups and is based on what is known about the size, demand, or importance of a deposit containing a particular mineral group relative to others. In Table 3-2, each Class (1-5) is ranked in descending significance and corresponds to a mineral deposit area, with Class 1 areas having a greater significance or mineral potential than the next lower class of area and likewise down the list.

Areas with the greatest potential (1) would contain a significant quantity of minerals from Groups 1, 2, and 3 or would contain minerals of any group that are presently mined within the Planning Unit. Areas with the next lower amount of potential (2) would contain occurrences not in great quantities of minerals from Groups 1, 2, and 3 and would include Group 4 minerals in significant amounts but without demand (this class also includes areas inferred to contain significant amounts of Groups 1, 2, and 3 minerals). Areas with the next lower amount of potential (3) are inferred favorable for discovery of Groups 1, 2, 3, and 4 minerals in unknown amounts. Areas with the next lower amount of potential (4) are areas with unqualified potential pending additional data. Areas with unqualified potential should not be considered as less than the areas with higher potential--much of the area with unqualified potential may be included with the next lower class once significant data is interpreted. The area with lowest potential (5) is considered either unfavorable for the type of mineral deposit or no data is expected that will determine otherwise. The potential classifications should not be viewed as (1) high, (2) moderate, (3) low, (4) unqualified, and (5) none; but can only be used in the relative sense with one area either having somewhat higher or lower potential than another. In this way potential deposits can be compared with the Nation's importance of need. This avoids comparing potential, hypothetical, or speculative undiscovered resources with other known or undiscovered resources in other parts of the nation or world.

TABLE 1

EXPLANATION OF MINERAL GROUPS
LISTED IN DESCENDING ORDER OF SIGNIFICANCE

Mineral Group Number	Explanation
1. Strategic or Energy-Related -	Those minerals that are stockpiled and listed with strategic and/or critical materials and those minerals that are energy-related.
2. Import Reliance -	Those minerals produced domestically that are supported with a 50 percent or more import reliance.
3. Major Export -	Those minerals that are Nationally important of which the U.S. is a net exporter.
4. Regional/Local Importance -	Those minerals that are only of regional or local domestic importance.

Source: Bureau of Land Management, Las Vegas District, Caliente Wilderness Team, 1983.

TABLE 2

CLASSIFICATION OF MINERAL POTENTIAL*

Relative Potential	Explanation
1.	This class includes areas interpreted on the basis of known mineral deposits of A) Groups 1, 2, and 3 commodities existing in significant quantities, and B) Groups 1-4 commodities mined in the Planning Unit (includes presently producing areas).
2.	This class includes areas containing known mineral deposits with reserves and/or resources of A) Groups 1, 2, and 3 commodities not known in significant quantities but without significant demand, and B) inferred occurrences of significant amounts of Groups 1, 2, and 3 Class 1 commodities.
3.	This class includes areas interpreted to be favorable for future discovery of mineral deposits based on evaluation of geologic, geophysical and/or geochemical data (higher confidence than 4).
4.	This class includes areas for which the potential for mineral resources is interpreted on the basis of preliminary evaluation of geologic, mineral occurrence and limited field verification data only. No further analysis has been done.
5.	This class includes areas that could not be classified due to insufficient data and areas where known geology is considered unfavorable for the type of mineral deposit.

* Based on Commodity Significance (Table A-1) and Occurrence Potential.
Source: Bureau of Land Management, Las Vegas District, Caliente Wilderness EIS Team, 1983.

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